FIMA YEAR BOOK 2018

FEDERATION OF ISLAMIC MEDICAL ASSOCIATIONS الاتحاد العالمي للجمعيات الطبية الإسلامية

الجزء الخامس

ENCYCLOPEDIA OF ISLAMIC MEDICAL ETHICS

PART V

الصحة الإنجابية:
الأبعاد الأخلاقية والدينية

Reproductive Medicine:
Bioethical and Religious Perspectives


بسم الله الرحمن الرحيم

"...وَقُل رَّبِّ زِدْنِي عِلْمًا" سورة طه: 114

"*O my lord! Advance me in knowledge*"

The Glorious Qur'an: Taha 20: 114

FIMA
Year Book 2018

Federation of Islamic Medical Associations

الاتحاد العالمي للجمعيات الطبية الإسلامية

ENCYCLOPEDIA OF ISLAMIC MEDICAL ETHICS- PART V
موسوعة الأخلاقيات الطبية الإسلامية- الجزء الخامس

Reproductive Medicine: Bioethical and Religious Perspectives

الصحة الإنجابية: الأبعاد الأخلاقية والدينية

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Dear FIMA members
Assalamu Alaykum
Bismillah al-Rahman al-Rahim

All praises be to Allāh (ﷻ) the Most Beneficent, Most Merciful.

Peace and blessings be upon Prophet Muhammad (ﷺ), his family, companions and followers until the end of time.

The *FIMA Yearbook* was first published in 1996, initiated by the doctors in the Islamic Medical Association of Malaysia (IMAM). There was however a void in the *Yearbook* publication until *al-marhūm* Dr. Aly Misha'l (RA) took over the stewardship of the *Yearbook* in 2002 and incorporated some of the best brains and hearts in FIMA to rejuvenate, one of our core FIMA objectives, namely, to mainstream Islamic perspectives of medical ethics.

Dr. Aly's other major initiative was to kick-start the project "Encyclopaedia of Islamic Medical Ethics" in 2013, to collate and archive all the *Yearbook* articles which addressed the various and complex medical issues from the Islamic ethos.

Undoubtedly, the *Yearbook* was very close to his heart and his dedication and passion to the culture of continuous teaching, learning and documenting was an inspiration to all of us in FIMA. Among many other of his pioneering works and achievements, the FIMA Yearbook and the Encyclopaedia of Islamic Medical Ethics will always be his legacy to FIMA and the larger *Ummah*.

Coincidentally, the FIMA Yearbook, titled *Contemporary Bio-medical Issues in the Light of Islam* which he first initiated in 2002, with *al-marhūm* Prof Muhammed A.A. Khan (RA), Prof Hossam E. Fadel and Prof Hafeez-ur-Rahman, dealt with many topics that were in the realm of reproductive science, namely, beginning of human life, prevention of genetic disorders, abortion, assisted reproductive technologies and cloning.

In one of his many thoughts and counsel to the executive committee of FIMA (2017-2019), Dr Aly suggested a re-examination of the various aspects of reproductive medicine, which has evolved revolutionarily with micro-manipulation at the very earliest stages of human development, at the level of the embyo, single cell and the DNA structure. These new advances in reproductive science has inevitably generated a lot of issues and controversies from the bioethical, medico-legal, social and religious perspectives.

Upon the demise of Dr Aly on the 26th June 2018, I had the unenviable task of bringing this ambitious project to fruition. *FIMA Yearbook* 2018 titled *Reproductive Medicine: Bioethical and Religious Perspectives* would also double as Part V of the "Encyclopaedia of Islamic Medical Ethics" towards addressing many of the complex issues of contemporary medicine.

It is very heartening to report that the scholars and academics in the FIMA fraternity responded very favorably to the requests for articles and the Editorial Board reciprocated with prompt reviews of the articles submitted. We would like to thank all the contributors to the 2018 *FIMA Yearbook* and to the Editorial Board members who diligently reviewed the manuscripts.

It is our hope that the following captions from the 16 scripts selected for publication, would give all our readers a snapshot of the new science of reproductive medicine from the lenses of bioethics and Islamic jurisprudence:

1. There are three main points to consider when tackling the issue of the beginning of human life: (i) is it at conception, or (ii) when the fertilized ovum gets settled in the womb (implantation) or (iii) at the moment of ensoulment. Isam al-Shirbini observed: "We believe that neither the religious scholar nor the physician has the capacity to examine this issue comprehensively without bilateral discussions between the two groups". Therefore, we need the close collaboration between biomedical scientists and religious scholars in order to handle this point. (Chapter 1: The beginning of human life)

2. Islam urges the seeking and utilization of the latest science and technology as a means of protection from diseases, including early diagnosis and intervention to ensure, as much as possible freedom from illnesses. Prophet Muhammad (ﷺ) has also underlined the importance of selecting the appropriate spouse and to ensure legitimate procreation of children. (Chapter 2: Ethics of premarital screening and counselling: An Islamic perspective)

3. Only the most conservative scholars prohibit birth control in all instances. Most Muslims scholars opine that contraception is permissible with the wife's consent, because Islam recognizes the wife's right to sexual fulfillment and procreation. *Imam* al-Ghazālī (1058-1111) is a leading proponent of this view basing his opinions on a fundamental principle in *Uūsul al-Fiqh*, the default ruling being permissibility in the absence of a clear prohibition or silence of the authenticated texts in matters related to social transactions or *mu`āmalāt*. He notes that there is no text in the *Qur'ān* or the *Ahādīth* to prevent a consenting couple from having fewer children. (Chapters 3 and 4: Contraception and Family Planning)

4. The issue of abortion is linked to the time when the product of fertilization is considered to possess life that is when it becomes a living entity. Islam is opposed to abortion as a rule. The exception is that under some extraordinary circumstances, say, for example, if there is a serious risk to the health or life of the mother, or if the fetus has some incapacitating congenital abnormalities that are incompatible with life, termination of pregnancy (TOP) will be permissible. (Chapter 5: Prevention and termination of pregnancy: Ethical concerns)

5. The rapid advancement and success of modern Assisted Reproductive Technologies (ART) has completely revolutionized the treatment of infertility and has given rise to multiple ethical and religious concerns. Islamic law recognizes infertility as a medical condition and encourages its treatment to achieve pregnancy but within

allowed Islamic principles. (Chapters 6 and 7: Assisted Reproductive Technologies: The Islamic perspective)

6. Some western bioethicists do not agree with Homologous Artificial Insemination (AIH) even if the donor is the legal husband . This point of view would restrict the options of assisted reproductive technology to overcome male infertility. On the other extreme, some Western ethicists, on the grounds of procreative liberty, have rationalised for the legitimacy of Donor Artificial Insemination (AID). They however, dispute whether the identities of the sperm donors maybe disclosed or not. (Chapter 8: Overcoming male infertility through assisted reproductive technology: An ethical perspective).

7. If surrogacy is still practiced despite the prohibition, it is the consensus of Islamic scholars that the birth mother is the "real" mother. Muslim scholars consider that surrogacy for hire violates Islamic ethics by reducing the sacred acts of marriage and childbirth to a commercial contract. (Chapter 9: Surrogacy: Legal and ethical implications).

8. Although sex selection for medical purposes is generally accepted as ethically appropriate, concerns about endorsement of sexist practices, disruption of the sex ratio, or exacerbation of sexist discrimination has led the overwhelming majority of countries regulating Preimplantation Genetic Diagnosis (PGD) and Muslim scholars to prohibit its use for sex selection for social reasons. (Chapter 10: Sex selection)

9. There is nothing wrong in freezing and preserving sperms and fertilized ova (zygotes) provided that serious steps are taken to ensure that no mixing of their donors with those of other donors can occur, and the sperm is only used to impregnate the donor's own wife. Also, it is necessary to ensure that a frozen zygote is only implanted in the uterus of the wife of the couple who generated that zygote and that this couple is still legitimately married. (Chapter 11: Ethical issues related to sperm, ovum, embryo banks and post-humous impregnation and Chapter 12: Surplus embryos in IVF laboratories).

10. The gap between Western and Islamic law on adoptions is fundamental, Islamic jurists are unanimous in holding that traditional closed adoption violates Islamic rules which emphasize lineage. Instead, a guardianship model known as *kafalah* was devised to work around the religious restrictions, and in fact, there is evidence that open adoption is increasingly gaining traction. (Chapter 13: Adoption in Islam).

11. Apart from a small minority of "rogue cloners" there is an international consensus against the reproductive cloning of human beings. However, the opportunity to agree to an international convention to ban reproductive human cloning was lost when member countries disagreed on the extent of the ban. (Chapter 14: Human genetic and reproductive technologies: An international medico-legal-religious impasse?).

12. Western secular bioethics permit the use of donor sperms and eggs in IVF techniques. Islamic bioethics however protects the importance of lineage by disallowing it. Western secular bioethics allows lesbians and homosexual couples the right to resort to assisted reproductive technologies. Islamic bioethics only allows ART to couples in accepted wedlock (a man and a woman). The approach of Western

secular bioethics may seem to be broad in one sense. The approach of Islamic bioethics preserves the welfare of the bigger society by its protection of the DNA of the family unit. (Chapter 15: Moral issues associated with test tube baby technology: Western ethical perspectives).

13. The issue of terminating pregnancy is not merely a legal issue as it is also a moral, ethical and religious issue that needs to be resolved. However, the resolution on the issue of terminating pregnancy remains elusive, as it is not possible to combine and compromise the issue of morality, ethics and religion. Consequently, law on terminating pregnancy differs from one country to another, depending on the religion, customs and morality of the people of the country. Society and law, are thus, embroiled in this debate but the intervention of law in this area is considered highly necessary to create a balance between law, ethics and morality. (Chapter 16: The Legality of Terminating Pregnancy from the *Sharī`ah* and Malaysian Law Perspectives).

The tedious work of copyediting, proofreading, formatting and finally publishing of this and earlier *FIMA Yearbooks* would not have been possible without the dedication and meticulous efforts of *al-marhūm* Dr Aly's staff in Islamic Hospital, Jordan, notably Ms. Elham Mohamad Swaid. May Allāh (ﷻ) bless them bountifully for their admirable and sincere efforts.

I pray that Allāh (ﷻ), the source of all knowledge and wisdom, accept and bless all our efforts in His service and pleasure. We pray for Allāh's (ﷻ) guidance and mercy in all our endeavours. Unto Him (ﷻ) we seek refuge and forgiveness for our failures and shortcomings.

Yours sincerely,

Musa Mohd Nordin
Chief Editor, FIMA Yearbook

Federation Of Islamic Medical Associations (FIMA) in Brief

- Established at the outset of the 15th Hijrah century, December 1981, in Orlando, Florida, USA, where senior leading medical professionals representing ten Islamic medical organizations, from various parts of the world, convened and laid down the foundation of the Federation.
- Subsequently, in March 1999, FIMA was incorporated in the State of Illinois as a non-profit organization, and a tax-exempt status was acquired. FIMA acquired the special consultative status with the United Nations Economic and Social Council (UN-ECOSOC).
- Since that time, FIMA membership progressively expanded to include more than 40 full and associate members, and more than 15 prospective and collaborating organizations from all over the world.
- Most FIMA activities and achievements are based on the endeavors of its member Islamic Medical Associations (IMAs), in constructive mutual cooperation, and harmonious understanding.
- Islamic medical activities of FIMA have a holistic nature. Leadership, mutual cooperation and innovation are prerequisites for the welfare of our communities, our Ummah and humanity at large.
- These activities include, but are not limited to:

1. Cooperation in humanitarian medical relief work, where and when needed in disaster stricken countries, regardless of ethnicity, religion or race. The FIMA Save Vision Program was initiated in early 2005. To date more than 200,000 eye surgeries have been performed by volunteer ophthalmologists and teams from IMAs in several countries, in Africa, South and South East Asia, where visual impairments are rampant. The program included training of local medical professionals to continue and widen this activity by qualified local talents. The program also included establishment of local eye hospitals or eye sections in existing general hospitals, in deprived communities.

   This activity earned FIMA a distinguished award from the American College of Physicians (ACP), designated for outstanding humanitarian medical achievements.

   Over the past few years, three new humanitarian activities were launched: The cleft lip/palate (Save Smile), vesico-vaginal fistula (Save Dignity) safe and clean water (Safe Water) projects, which highlighted significant medical and psychosocial problems in several needy communities.
2. Collaboration with regional and international organizations in areas of preventive medicine and community health education.
3. Scientific, professional and ethical jurisprudence-related conferences, seminars and publications.
4. Establishment of the Consortium of Islamic Medical Colleges (CIMCO), to foster cooperation in improvement of curriculum, training, research, administration, and up-bringing of model medical practitioners.

5. Establishment of the Islamic Hospitals Consortium (IHC), to pursue cooperation and coordination among medical professionals and hospital administrators in areas of experience exchange, benchmarking, improvement of health care delivery, ethical, administrative and operational activities, to meet the most advanced international standards, in the context of Islamic principles.
6. Publication of FIMA Year Books, which address biomedical, scientific, ethical, and other related issues that are needed for medical practitioners, educators as well as jurists.
7. In 2013, the FIMA committee on Bioethics embarked on the project of Encyclopedia of Medical and Health Ethics. In view of the extensive effort needed, this project is expected to span over several years.
8. The International Journal of Human and Health Sciences (IJHHS): A scientific peer reviewed scholarly medical journal, launched by FIMA in the 3rd quarter of 2017, to promote healthcare, research and medical education.
   Website: www.ijhhsfimaweb.info
9. Medical students' activities, including conferences, seminars, publications, camps, Umrah and Ziarah programs, pioneered by IMA-Saudi Arabia.
10. Collaboration to extend a helping hand to Muslim medical practitioners in underprivileged countries, to work together and organize professional medical societies, to serve their communities.
11. Activities to combat HIV/AIDS and sexually transmitted infections (STIs): FIMA established long standing educational, prophylactic and capacity building activities in many countries, especially in Africa and Asia, which was pioneered by Uganda IMA in the 1980s. Ten years ago, FIMA launched the parallel project [Protection of Our Youth From STIs and AIDS], pioneered in Jordan, with wide spread activities of education, nurturing and preparation of thousands of local youth leaders in around 30 countries in various regions of the world.
12. Activities to combat all forms of addiction. The project is organized and directed by the Green Crescent Society, based in Istanbul-Turkey, with programs conducted in several countries. The theme of FIMA Yearbook in 2014 was on addiction.

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DOCTOR ALY AHMAD MISHA'L
JOURNEY OF STRUGGLE
(1938-2018)

From the village of Lifta, one of the cities of Jerusalem, the journey began. This village is known for its beauty and deep-rooted history. Its beauty and uniqueness convinced UNESCO to adopt it as a national heritage site.
And so began the first chapter of the life of struggle and sacrifices for our friend. He was raised in a middle income family that owned a large home, made of rose colored stone surrounded by a garden rich with fruit trees. It was in the middle of a community that cherished education and knowledge like most of Palestine at that time. So started a life of knowledge in the village Kutab (primitive school) in the historic Saif Aldeen mosque in Lifta. Saif Aldeen was a righteous fighter in Salah Al Deen Al Ayubi's army. Afterwards, he went on to finish his primary education in the village school until 5th grade.

Then came the painful Nakba, and the village of Lifta was marred by massacre and destruction. Its people had little or no weapons to defend themselves against the British occupation.

After one of these massacres, the people of Lifta fled, but left some of the young men with very little primitive weapons and ammunition to fight the occupiers. But after a few weeks they succumbed after their ammunition ran out. The few who were not martyred were able to join their families and became refugees in other Palestinian villages and cities.

After the destruction of their home, his mother, God have mercy on her soul, insisted that they flee to protect their family. She refused to listen to her husband who was against her decision. She fled to a village near Ramallah. She moved from a spacious home with a beautiful garden to living in an old shed. This was from 1948 to 1950. This memory has not been erased of their first escape on foot: a mother and her four children and the little possessions they were able to carry. The father stayed behind to fight with only an old sword as a weapon. Ultimately, he had no choice but to leave and join the family which he found in a wretched state. The family heard his weeping in the first evening he arrived. And he could never forget this, and this was the only incident they had ever seen their father cry.
During this time of war and struggle, there were no opportunities for education in the village they took refuge in. At the end of the hostilities in 1950, the family moved to a house belonging

to his uncle in a Jerusalem neighborhood called, Sheikh Jarah. It was very close to the new boarder with the occupiers.

The memory of the remains of the body of a young martyr from the Jordanian army that the family found next to the house still remains. The family kept the body and buried him where he died. Nor could they forget the soldier's mother and his family from the Jordanian city of Shobak, when they came for his body to take him back to his home town. May God have mercy on his soul.
He furthered his studies in the Rashidia College and stayed there for 2 years. The family was forced again to flee because the Zionists attacked their home and occupied it under the pretense that there was a mistake in the armistice plan, and that the home belonged to the Jewish people.

This time the family had no choice but to join the majority of the refugees in a refugee camp in Zarka, a city in Jordan. There they took residence in a tent which was developed over years of struggle and turned into a 2 room home that his father with the help of his mother and brothers built. And stayed in it until 1976, afterwards they moved to the capital of Jordan, Amman.

After the Al-Rashidia College, our friend went on to study in the Hussein College in Amman. The principal's name was Mr. Radi Abdulhadi, God have mercy on his soul. The school only accepted the most academically exceptional students from each district in Jordan. We reminisce the memory of the first meeting between a school principle and a poor student that entered the principal's office holding a recommendation letter from a top official in the ministry of education. The principal sternly told him: "I'm sorry! But there is no place in this school for you." So this student timidly walked towards the door to leave. Then the principal called out to him: "Son you did not show me your grades!" When he saw that he was the first in his class every year consistently, he said: "Son this is what will get you accepted not the recommendation letters!". He ordered the secretary to register him in the school. This will never be erased from Dr. Aly's memory. This is an example of the high morality and leadership of educators at that time.

He completed his secondary education in the Hussein College. This was the last year the metric system would be taught, after that the tawjihi system was applied, which is the 12^{th} grade certification examination in Jordan. He graduated as one of the highest achieving students in his class. And the joy for this poor family and relatives was great.

The elders congratulated his father and said "thanks God, Aly will become a teacher!". His older brother, Mohammad, God have mercy on his soul, came home from teaching and swore that Aly would study medicine no matter what the financial burden.

Our friend was offered two academic scholarships to university: the first from the ministry of education, but it was not a medical scholarship, and the second was from UNRWA to study medicine. And so he chose the second one and went to Alexandria University in Egypt to study medicine. He chose this university because he had two dear friends studying there. The first was

Suleiman Arar, God have mercy on his soul, who studied law. The second was Aly Mowafi who studied business. They greeted him with brotherly warmth. Aly Mowafi kindly hosted him in his room with the host sleeping on the floor and graciously giving his bed to his friend until they found him a residence nearby.

Egypt at that time was flourishing and booming. Egypt accepted students from various Arab countries and would honor and take care of them.
Most graduates from the Arab nations who had graduated from Egypt in various fields returned to their countries to become pioneers in various institutions in their countries.

The years of studying went by with its burdens, happiness, and satisfaction. During this time, our friend witnessed a united Egypt and Syria and the hope that went with it. He also witnessed the catastrophe of their demise and the pain that accompanied it. Our friend remembers when he would comfort himself by walking on the corniche along the Alexandria Sea and he would look North East to look above the waves of the sea to see the coastal cities of Palestine whose shores the sea would watch over. He would also think of his father and brothers that were struggling in the refugee camp. Finally in 1964, he graduated and finished his residency, then returned to Jordan working to bring his family out from poverty and refugee life. He worked as a doctor with UNRWA during the day. Then he would work afternoons in a private clinic in the Dubat district in Zarka. And he was able to work with UNRWA in various refugee communities and camps located in several parts of the west bank and lived among them to understand how they were suffering until 1967. This time was filled with political Palestinian work and protests confronting the Israeli aggression on border villages, and political trends with the big hope of unity, glory and the return of the stolen homeland, until the nation faced another tragedy in 1967.

His marriage to Suad lasted 50 years, thanks to God. In 1971, he travelled to the US to specialize in internal medicine. Then he subspecialized in endocrinology and diabetes. In 1976, he became a board certified internist. Afterwards he was appointed to the faculty of Medicine in Illinois University of Chicago. During this time he finished his training in his sub-specialty and was board certified in 1983. He became an associate professor in the University of Illinois. During this time period Dr. Aly participated actively in medical research and published many of his works in scientific journals.

During the period of his presence in America in the seventies and eighties of the last century, he found that the early Arab immigrants were losing their cultural ways and was adopting the American lifestyle. He was very concerned about this unhealthy trend which was often non-Islamic in many ways. His brothers in Islam who migrated from Pakistan and India were the first to realize this and began to build mosques and Islamic centers that linked Muslims with each other. These centers gathered together the Muslim diaspora in Chicago.
He remembered a story about a girl from the outskirts of Ramallah, whose father was married to a Spanish woman. Dr. Aly said to her: “My daughter, you are an Arab Muslim girl” she told him: “Do not blame me but blame my father who did not mention anything about my country and religion”. And that is the way people were, until the coming of large numbers of Arab

intellectuals in America. And the schools and centers started to play a role in raising awareness in these generations and returning them to their religion and their connection to the heritage of their homelands and the values and their Islamic culture through lectures and seminars. They also taught Arabic and Islam to the boys and girls. The new mosque opened in 1979 with Sheikh Jamal Saeed from Ajloun, Jordan appointed as its Imam. Until today Sheikh Jamal remained the mosque imam. Two Islamic schools were added next to the mosque, which were recognized by the American education school board.

In 1986, Dr. Aly and his family returned to Jordan so his children could finish their schooling and could keep their connection to their homeland, values, and religion. He also wanted to take care of his parents, God have mercy on their souls, who had gone through decades of struggle and suffering. Although he would never be able to repay them for everything they had sacrificed for him.

During this year, Dr. Kandeel Shakir and Dr. Aly Hawamdeh, God have mercy on their souls, visited him and asked him to be a member of the Islamic hospital, and so he signed a contract as an endocrinologist. They asked him to take the role of medical manager, which would require much of his time but he accepted as a volunteer from 1986-1992. Later he was appointed chief of medical staff to follow developments in education, training, scientific research and quality.

Education and training were among the most important principles upon which the Islamic hospital was founded. At the beginning of 1986, Dr. Aly felt that he should guide the founding pioneers of this hospital to devote the majority of their efforts towards transforming the hospital into an educational and training medical institution.

Accordingly, the scientific committee was formed under the chairmanship of Dr. Aly and together with his colleagues and heads of medical departments, they initiated and planned the Islamic Hospital's medical education, training and scientific research. The records of this committee refer to words worthy of reflection. The committee approved at its meeting on 12/April/1986, a basic rule that the Islamic hospital will start and develop medical education and training, regardless of the recognition of official bodies that supervise the adoption of training and education. Since then, training programs have been adopted for doctors in various disciplines, introduction of internationally accredited training systems, study of the education and training systems adopted by the Jordanian medical council and the Arab council for medical examinations.

In the following 6 months, scientific and training activities became an essential part of the duties of physicians. This was accompanied by the adoption of a comprehensive system of the principles of appointing specialized doctors and granting scientific titles according to qualifications, experiences and scientific research. The committee had established the rules for the periodic assessment of trainee doctors and the rules of examinations and criteria for success and failure.

The medical library and the various medical models were also developed. The medical records department was developed to keep abreast of world-class standards. The planning and implications of scientific research programs began in a gradual manner to be part of education and training. The scientific research committee was formed by specialized doctors with expertise

and interest in the respective subject, to work side by side with the scientific committee and the activities of teaching and training. Scientific research had also been adopted for the recruitment, promotion and leadership positions in the medical departments. The hospital doctors have published hundreds of medical papers in local and international journals.

Dr. Aly Mishal's interest in scientific research, especially in his field of specialization, has been great from the time he started specializing in America and continues until his demise. Since then, during his work at the Islamic hospital, he has been able to publish a great deal of scientific research in scientific journals in Jordan and outside of Jordan. He also wrote and published much research and articles in the fields of contemporary medical issues and medical ethics.
In order to regulate the professional and training relationship with doctors in the private sector, the hospital approved the system of accreditation of doctors to enter and treat their patients in the Islamic hospital, a policy based on the certificates and expertise of doctors that qualify them to provide services and medical procedures specifically according to the certificates and their experiences.

The hospital submitted a request for the accreditation of its training programs to the Jordanian Medical Council since 1985. The hospital documents indicate that the higher studies committee of the council approved the accreditation of the Islamic hospital for the training of resident physicians from the principle area in March 1987. This was submitted to the Jordanian medical council on 15/April/1987. In recognition of the excellent implementation of the educational training policies in the Islamic hospital, the board approved the recognition and accreditation. This accreditation included the following sections: general medicine, general surgery, pediatrics, obstetrics and gynecology.

Many specialists from the Islamic hospital joined the different committees of the Jordanian medical council and the examination and evaluation committees. For many years Dr. Aly has been a member of the committee on internal medicine, the endocrine and diabetes committee and the graduate studies committee of the council.

In early 1992, the hospital administration adopted the structure of education and training to include: scientific committee, scientific research committee and council of the chiefs of medical departments.

On 3/May/1993, the scientific committee approved the submission of applications to accreditation authorities in training and education outside of Jordan, including the Arab council for medical specialties and fellowship programs in the United Kingdom and Ireland. In the following years, many medical specialties were adopted in these international programs, notably: general surgery, obstetrics and gynecology.

The hospital has continued its efforts to develop and expand the accreditation of the hospital in many other specialties. The other specialties approved by the Jordanian medical council

included: diagnostic radiology, anesthesia and intensive care, emergency medicine, ophthalmology, cardiology (fellowship), endocrine and diabetes (fellowship program).

It is worth mentioning in this regard that the Islamic hospital estimated the need of the Jordanian society for female doctors specializing in obstetrics and gynecology, they emphasized on this need which resulted in the graduation of more than (100) specialized female doctors in this field. Trainee doctors from several Arab countries including: Yemen, Sudan, Palestine, and Iraq arrived at the hospital.

Students form medical schools and other medical professions have come to the hospital from inside and outside of Jordan according to the requirements of their university. The hospital offers special programs for students of medical colleges from foreign countries including training and education, as well as culture and heritage programs in which they learn about Jordan historically and geographically. The most prominent countries from which these medical students came included, America, Europe, South Africa, Malaysia, Pakistan, and Indonesia.
The Islamic culture program was adopted for the doctors, which is part of the training and qualification of the resident doctors. It includes international and Islamic medical ethics, history of medicine and Islamic civilization, the rules of Jurisprudence (*fiqh*) necessary for medical practitioners and other related cultural materials.

A committee of inquiry and quality control in medical work was set up in 1997. We are inheritors of the ancient Islamic civilization whose noble prophet laid the cornerstone in the work of quality standards emanating from the heart and conscience 14 centuries ago when he said, "Allah will be pleased with those who try to do their work in a perfect way." The Islamic hospital was the first hospital in Jordan that applied standards of quality dealing with various aspects of medical work, training, nursing, and more.

Dr. Aly supervised the holding of medical doctrinal seminars in which specialized doctors and Islamic jurisprudents participated. Three volumes were published in collaboration and integration between the hospital and the society of Islamic medical sciences in the Jordanian medical association. They became references for researchers and those interested in medical jurisprudence.
This is just the tip of the iceberg of the community service, training and qualification, which the hospital has been accomplishing and developing and looks forward to more achievement and perfection.

He was elected secretary-general and then president of the Federation of Islamic Medical Associations (FIMA) a global gathering of Arab and Muslim doctors concerned with education, training, scientific research, and medical relief since 1981. Dr. Aly continued to publish the annual yearbook of FIMA and then the Encyclopedia of Islamic Medical Ethics, in supervising, editing and writing research in this book, and until his demise, the Executive Director of FIMA.

In the field of general ethical medical work, Dr. Aly Mishal's work continues to extend to the last day of his life.

We pray that God will bless all his lifelong efforts and hard work and that they are added to his record of good deeds.

❖ Translated with permission from Islamic Hospital Newsletter.

DEFINITION OF THE BEGINNING OF HUMAN LIFE

*Kusuma Andriana**

Abstract

The human life cycle as described in the *Glorious Qurān* shows that human life is a series. It is quite difficult to define when the beginning of life begins. The entire life cycle is unknown - but Allah knows - and cannot be approached only with common materialistic notions. There is a need for close collaboration between biomedical scientists and religious scholars. There are three main points to consider when tackling the issue of the beginning of human life: (i) is it at conception, or (ii) when the fertilized ovum is settled in the womb (implantation) or (iii) at the moment of ensoulment. We must be cautious and careful to accept all the processes that occurs in the pregnant women as part of God's plan and the prohibition from stopping them except on the grounds of medical complications or acceptable *Shari'ah* reasons.

Keywords: Beginning of human life, conception, fertilization, ensoulment, *Shari'ah*

Introduction

The topic "when does human life begin?" remains controversial[1]. There are no explicit answers, because it is not a question restricted to biology but also on philosophy, politics, psychology, religion, technology, and emotions[2].
The human life cycle undergoes various phases during the process of procreation. Three terms, namely, *nutfah, `alaqah, and mudgah* are mentioned in a Qur'anic verse (*Al-Hajj*, 22:5) depicting the human life cycle:

(يَا أَيُّهَا النَّاسُ إِن كُنتُمْ فِي رَيْبٍ مِّنَ الْبَعْثِ فَإِنَّا خَلَقْنَاكُم مِّن تُرَابٍ ثُمَّ مِن نُّطْفَةٍ ثُمَّ مِنْ عَلَقَةٍ ثُمَّ مِن مُّضْغَةٍ مُّخَلَّقَةٍ وَغَيْرِ مُخَلَّقَةٍ لِّنُبَيِّنَ لَكُمْ وَنُقِرُّ فِي الأَرْحَامِ مَا نَشَاء إِلَى أَجَلٍ مُّسَمًّى ثُمَّ نُخْرِجُكُمْ طِفْلا ثُمَّ لِتَبْلُغُوا أَشُدَّكُمْ وَمِنكُم مَّن يُتَوَفَّى وَمِنكُم مَّن يُرَدُّ إِلَى أَرْذَلِ الْعُمُرِ لِكَيْلا يَعْلَمَ مِن بَعْدِ عِلْمٍ شَيْئًا وَتَرَى الأَرْضَ هَامِدَةً فَإِذَا أَنزَلْنَا عَلَيْهَا الْمَاء اهْتَزَّتْ وَرَبَتْ وَأَنبَتَتْ مِن كُلِّ زَوْجٍ بَهِيجٍ)

"O People, if you should be in doubt about the Resurrection, then [consider that] indeed, We created you from dust, then from a sperm-drop (nutfah), then from a clinging clot (`alaqah), and then from a lump of flesh, formed and unformed (mudgah) - that We may show you. And We settle in the wombs whom We will for a specified term, then We bring you out as a child, and then [We develop you] that you may reach your [time of] maturity. And among you is he who is taken in [early] death, and among you is he who is returned to the most decrepit [old] age so that he knows, after [once having] knowledge, nothing."[3]

Abd-El-Maeboud (2009) points out that in the above Qur'anic verse some important stages of human life are depicted which relate to fertilization, implantation, age of viability, ensoulment, quickening, birth, infant, child, adult and old age (see Figure 1 below):

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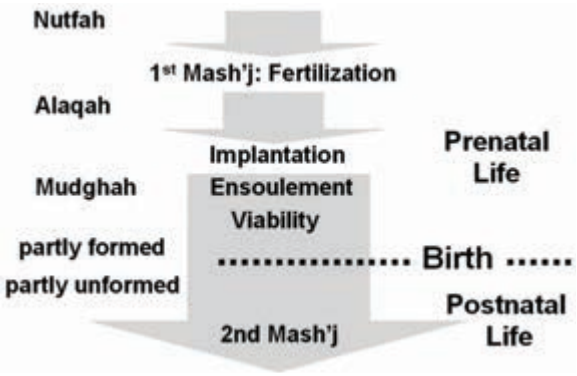

Figure 1. Human life cycle: Milestone points along the continuum [1].

On the issues of the beginning of human life, scientists and religious scholars differ. In 1985 (January 15-17), the Islamic Organization for Medical Sciences (IOMS) held a symposium in Kuwait on the topic "Human life: its beginning and its end from an Islamic perception". There are three main points to consider when tackling the issue of the beginning of human life:
(i) is it at conception, or (ii) when the fertilized ovum gets settled in the womb (implantation) or (iii) at the moment of ensoulment. Isam al – Shirbini observed: "We believe that neither the religious scholar nor the physician has the capacity to examine this issue comprehensively without bilateral discussions between the two groups"[4]. So, we need collaboration between biomedical scientists and religious scholars in order to handle this point.

(i) Fertilized ovum as the beginning of human Life

Fertilization is the union between the sperm and the ovum which occurs after a woman ovulates. This union combines the chromosomes of mothers and fathers, which in turn will continue to experience cell division and growth[5]. Some experts argue that fertilization or conception is the beginning of life because this is where the signs of life begin[2,6]. This is supported by the fact that without fertilization there will be no new prospective individuals[7].
Some embryologist consider that the single-celled embryo is a very different kind of cell than the sperm and ovum, contains unique genome that will determine most future bodily features and function of his or her lifetime. The American College of Pediatrics concurs that human life starts when the sperm fuses the ovum and become a zygote or one-cell embryo[8].
Hathut,(1994) said that the beginning of this life should be counted from the earliest stage in which the following five conditions are fulfilled:
(1) The being has a clear and well-known start; (2) He has the potential to grow as long as he has not been deprived of the causes of growth;
(3) His growth would result in a human being as fetus, neonate, child, boy, young man, adult, old man, and so forth; (4) This being in an earlier stage cannot grow to become a human being; and (5) The being carries the full genetic code of the human race in general and of this specific being that distinguishes him from all others throughout the ages. All five conditions are only applicable to the fertilized ovum[9].

(إِنَّا خَلَقْنَا الإِنسَانَ مِن نُّطْفَةٍ أَمْشَاجٍ نَّبْتَلِيهِ فَجَعَلْنَاهُ سَمِيعًا بَصِيرًا)

"Verily We created man (insan) from a drop (nutfah) of a mingled sperm"[10]

The abovementioned Quranic verse supports this point. The term *insān* (human being) reflects the *nutfah*, which is the earliest stage in pregnancy. *Nutfah* is an Arabic word which denotes a small quantity or what is left when something dribbles or trickles down. The small quantity is known to refer to sperm according to the following Qur'anic verse:

(أَلَمْ يَكُ نُطْفَةً مِّن مَّنِيٍّ يُمْنَى)

"Was man not a small quantity of sperm which has been poured out?"[11]

In another Qur'anic verse, the following is stated:

(ثُمَّ جَعَلَ نَسْلَهُ مِن سُلالَةٍ مِّن مَّاء مَّهِينٍ)

"(Allah) made His posterity from the quintessence of lowly fluid"[12]

Sulālah in this verse refers to quintessence, means to extract or emit something that is part of a whole. This is in line with both ovum and sperm gently extracted from their environments in the process of fertilization[13]. The other verse states:

(... وَإِذْ أَنتُمْ أَجِنَّةٌ فِي بُطُونِ أُمَّهَاتِكُمْ فَلا تُزَكُّوا أَنفُسَكُمْ هُوَ أَعْلَمُ بِمَنِ اتَّقَى)

"*And when you are embyos in the wombs of your mothers"*[14].

Dr. Hathut explained the word "you" in this verse is about you and me – human being. It means, the *Glorious Qur'ān* speaks about human life even in its embryonic stage[1,4].

This statement refutes the view that implantation is a sign of the beginning of life. Implantation occurs at 6-7 days after fertilization. A question arises whether a zygote less than 7 days old is not alive? How about ectopic pregnancy? It causes intra-abdominal bleeding when it ruptures due to the inability to hold the fertility of a growing zygote[5]. Another pertinent question is whether using intra-uterine device (IUD) is permissible?".

Dr. Hathut, said that IUD should be considered as a forbidden abortifacient and not as a permissible contraceptive[9]. Abd al Basit and Shaykh Al-Salimi said that life should be protected once the fertilized ovum gets settled in the womb[4].

(ii) Implantation is the early sign of human life

Implantation is defined as the process by which the embryo attaches to the endometrial surface of the uterus and invades the epithelium and then the maternal circulation to form the placenta. Implantation has three stages, namely, apposition (when the blastocyst makes contact to the implantation site); adhesion (cell of trophoblast attaches to endometrial epithelium) and invasion (invasive trophoblast cell invade the stroma of endometrium[5,15].

In the verses of the *Glorious Qur'ān*, human creation is equated with creation of the plant. The interaction between the seed planted in the ground is the same as `*alaqah* (zygote-blastocyst*)* entering into the uterine lining. The existence of seeds on the ground, with some being inactive for years, does not imply the presence of life with the land or earth described as dead in many verses[16-19]. Life begins when the interaction between seeds and soil starts germinating or when implantation takes place in human[1]. Not every `*alaqah* develops into an embryo. There is Allah`s selection.

(يَا أَيُّهَا النَّاسُ إِن كُنتُمْ فِي رَيْبٍ مِّنَ الْبَعْثِ فَإِنَّا خَلَقْنَاكُم مِّن تُرَابٍ ثُمَّ مِن نُّطْفَةٍ ثُمَّ مِنْ عَلَقَةٍ ثُمَّ مِن مُّضْغَةٍ مُّخَلَّقَةٍ وَغَيْرِ مُخَلَّقَةٍ لِّنُبَيِّنَ لَكُمْ وَنُقِرُّ فِي الأَرْحَامِ مَا نَشَاء إِلَى أَجَلٍ مُّسَمًّى ثُمَّ نُخْرِجُكُمْ طِفْلا ثُمَّ لِتَبْلُغُوا أَشُدَّكُمْ وَمِنكُم مَّن يُتَوَفَّى وَمِنكُم مَّن يُرَدُّ إِلَى أَرْذَلِ الْعُمُرِ لِكَيْلا يَعْلَمَ مِن بَعْدِ عِلْمٍ شَيْئًا وَتَرَى الأَرْضَ هَامِدَةً فَإِذَا أَنزَلْنَا عَلَيْهَا الْمَاء اهْتَزَّتْ وَرَبَتْ وَأَنبَتَتْ مِن كُلِّ زَوْجٍ بَهِيجٍ)

"O mankind! If ye have a doubt about the Recreation (consider) that We

created you out of dust, then out of sperm, then out of a leechlike clot, then out of a chewed-like lump of flesh, formed and unformed, in order that We may manifest (Our power) to you; and We cause whom We will to rest in the wombs for an appointed term."[3]

In another verse:

(اللَّهُ يَعْلَمُ مَا تَحْمِلُ كُلُّ أُنثَى وَمَا تَغِيضُ الأَرْحَامُ وَمَا تَزْدَادُ وَكُلُّ شَيْءٍ عِندَهُ بِمِقْدَارٍ)

"Allah knows what every female bears, and what do the wombs abate (drain) and what do they urge to increase. Every single thing with Him is in (due) proportion"[20].

The mere presence of zygote does not necessarily correlate with pregnancy. In the human sense, a woman is considered pregnant if the zygote implants to the womb and provides clear evidence of success in this matter, eg delayed menstruation or positive pregnancy test[1].

Ghaly, (2012) in his statement, reiterates the third condition from Halthut about fertilization, "his growth would result in a human being as fetus, neonate, child, boy, young man, adult, old man, and so forth". Molar pregnancy or blighted ovum is an empty pregnancy, arising from the fusion between ovum and sperm, and does not result in a human being. Is fertilization still a sign of early life? In the case of twin pregnancy, the fertilized ovum split into 2 or more cells and each of which produces an embryo. When did the human life of twins start? Was this when the ovum fertilized or when the ovum split into cell? We know when the fertilized ovum splits into twin. Does it means there would be 2 lives?[4,9].

Qardhawi said that the fertilized ovum has dignity only after implantation in the uterus, so there is no harm if the IUD threw it away[4].

The growth of seeds (germination) and implantation are all ultimately in accordance with Allah`s Will. In other words, the formation of a fertilized oocyte is a crucial event that determines the beginning of human life because it starts the initial process of implantation[1].

(iii) Ensoulment

Abdullāh ibn Mas`ūd (may Allah be pleased with him) said, "The Messenger of Allah (PBUH) said:

عن أبي عبد الرحمن عبد الله بن مسعود رضي الله عنه ، قال: حدثنا رسول الله صلى الله عليه وسلم وهو الصادق المصدوق قال : إن أحدكم يُجمع خلقه في بطن أمه أربعين يوما نطفةً، ثم يكون علقةً مثل ذلك، ثم يكون مضغةً مثل ذلك، ثم يُرسل إليه الملك فينفخ فيه الروح، ويُؤمر بأربع كلمات : بكتب رزقه، وأجله، وعمله، وشقي أم سعيد . فوالله الذي لا إله غيره، إن أحدكم ليعمل بعمل أهل الجنة، حتى ما يكون بينه وبينها إلا ذراع، فيسبق عليه الكتاب فيعمل بعمل أهل النار، وإن أحدكم ليعمل بعمل أهل النار حتى ما يكون بينه وبينها إلا ذراع، فيسبق عليه الكتاب، فيعمل بعمل أهل الجنة.

(رواه البخاري ومسلم).

The creation of each one of you is brought together in their mother's womb for forty days in the form of a drop, then they become a clot of blood for a similar period, then a morsel of flesh for a similar period, then there is sent to him the angel who blows his soul into him and who is commanded with four matters: the angel is ordered to write their sustenance, lifespan, their actions, and if they will be happy or miserable[21].

This *Hadīth* mentions four stages in the creation of humankind: A drop of sperm, a blood clot, a chewed morsel, and then the soul is breathed into the body.

The drop: This is the living sperm that the man releases into the womb of the woman. The first stage that the fetus

passes through after the sperm fertilizes the egg is called the state of the *Nutfah* (drop). This lasts for forty days. **The blood clot:** This is the second stage and lasts forty days. **The chewed morsel:** This is the third stage, and is called as such due to its size, it resembles the size of the mouth of the chewing person. This also occurs for forty days. Thereafter, the soul is breathed into it. Therefore, based on this *Hadīth*, the soul is breathed into the soul after 120 days[21].

In the papers of Mahdi (1985), and Basalamah (1985) presented at the IOMS Conference in Kuwait, mention was made that the development of the nervous system and especially of the brain is the scientific sign that ushers in the soul-breathing stage[22,23].

Dr. Mahdhi spoke of five embryonic developments that occur during the twelfth week of pregnancy, which are firstly, emergence of movement, secondly, emergence of breathing-like movements (indicators for brainstem activation), thirdly, locomotor activity (periods of rest and sleep), fourthly, emergence of electrical signal from fetal brain and finally, response to exterior. All of these five signs refer to the functions of the nervous system that correlates with the beginning of human life[4].

Dr Basalamah (1985) said that the fertilized ovum passes through three stages: the cellular stage, the *`alaqah* and *mudghah* stage and the soul-breathing stage[23].

In stage 3, the brain and nervous system are fully formed as expressed in the following Qur'anic verse:

(ثُمَّ خَلَقْنَا النُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَوْنَا الْعِظَامَ لَحْمًا ثُمَّ أَنشَأْنَاهُ خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ)

"*Then we developed out of it another creature*" [24].

Brain death is used as a sign of the end of life, so, the full development of brain is the marker for the beginning of human life[4].

Some religious scholar tried to speculate on the timing of the breathing of the soul in the fetus. Some held the view that the timing of ensoulment is in the twelfth week of pregnancy. Hence, the three stages in Ibn Mas`ūd's *hadīth* should not be considered as a different stage but a continuation, and overlapping occurs there so that the total is not 120 days but less than that. Dr. Mahdi said that, 12 weeks or 84 days is the timing of the breathing the soul[22]. The second view is that of Muhammad Sulaiman Al-Ashqar who suggests that the breathing of the soul should not be estimated later than 40 days except for a few days. The third view is the majority opinion (*al-jamhūr*) where the breathing of the soul takes place after 120 days[4].

Conclusions

The human life cycle is described in the *Glorious Qurān* which shows that human life is a process. There is no one argument that definitely determines when life begins. Whether life begins at fertilization or from 40 or 120 days, we must accept all the processes that occur in pregnant women as part of God's plan and it must make us more careful, and not interfere with its gestation except when indicated by a medical complication and justified by *Shari'ah* reasons.

Acknowledgements

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24. The Glorious Qur'an : *Al-Mu'minun*, 23:14

ETHICS OF PREMARITAL SCREENING AND COUNSELLING: AN ISLAMIC PERSPECTIVE

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Abstract

Genetic, infectious, and blood-related disease all over the world, including in Islamic countries, are common and may cause significant morbidity and mortality. It will inflict a heavy financial and social burden on our society. Premarital testing and counseling for spouses is encouraged by scientists to reduce the effect of morbidity in children. Premarital screening program has a complex and interrelated ethical, religious, and socio-cultural ramifications which is central to respect for autonomy. Premarital testing and counseling should be recommended, even be made mandatory in the context of biomedical ethics and Islamic teachings. Some social factors may influence the acceptability of preventive program, such as local wisdom, religious beliefs, cultural norms, literacy and educational level, government policies, and the attitudes of the individual couples. Scientists, medical personnel, and other stakeholders, such as policy makers should also be involved in the program. This review is conducted to elaborate on biomedical ethics, Islamic guidance, and all other factors that may contribute to the success of premarital testing and counseling for solidifying the marriage bond and the delivery of disease-free offsprings.

Introduction

Genetic, infectious, and blood-related diseases places a heavy financial and social burden on our society. Premarital testing and counseling for spouses is encouraged by scientists and Islamic scholars with the aim of reducing the number of children affected with genetic or other diseases. However, premarital screening program is a complex issue with ethical, religious, and socio-cultural ramifications generating medico-legal concerns and impacting bioethical principles such as respect for autonomy. Premarital testing and counseling should be recommended, and should include perspective of biomedical ethics and Islamic legal deliberations to deal with any barriers and yield best solutions in order to ensure maximum freedom from illnesses.

Islamic perspectives on progeny

Islam has stipulated how to appropriately select spouses by “legal marriage” and how to care or preserve the offspring throughout his or her life since preconception, prenatal, postnatal, and thereafter to ensure a healthy offspring and optimal growth and development of children. Islam also enjoins the couple to take appropriate precautions to protect themselves and their offsprings, through the prevention of illness such as mandatory vaccination. Appropriate steps to ensure their optimal health as well as the health of children at all stages of life are suggested as well.

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Furthermore, Islam urges the seeking and utilizing of the latest science and technology as a means of protection from diseases, including early diagnosis and intervention to ensure, as much as possible, freedom from illness. Prophet Muhammad (PBUH) has also underlined the importance of selecting the appropriate spouse and to ensure legitimate procreation of children.

Basic principles of medical bioethics

Any metric of health screening and/or treatment for the population should correlate with basic principles of medical bioethics. Four commonly accepted principles of health care ethics, excerpted from Beauchamp and Childress (2008), include the principle of respect for autonomy, non-maleficence, beneficence, and justice.

Premarital screening and counseling

Premarital screening

Premarital Screening (PMS) is a series of tests for couples who plan to get married and are tested for genetic, infectious and blood transmitted diseases to prevent any risk of transmitting diseases to their children. Premarital screening is now one of the most important strategies for the prevention of genetic disorders, congenital anomalies, infectious disease and several medical and psychological marital problems.

The objectives of a premarital screening program is to limit the occurrence of genetic disorders, regulating marriages of those who are carriers or suffering from blood genetic disorders to prevent their progeny from inheriting genetic disorders, thereby saving the families from having affected children suffering from a chronic disease and psychosocial problems, and minimizing the economic burden on the family and the government. In Indonesia, before marriage, it is recommended that prospective couples undergo some tests and safeguard themselves from certain diseases by taking Tetanus Toxoid (TT), Measles-Rubella (MR), and Human Papilloma Virus (HPV) vaccine. Tetanus vaccine has become mandatory for spouses before marriage, validated by the Ministry of Health and Ministry of Religious Affairs. Other voluntary premarital screening programs, especially in Asia, are also conducted for inherited and sexually transmitted diseases in countries like China, Taiwan, Malaysia, India, Indonesia, Maldives, Singapore, and Thailand.

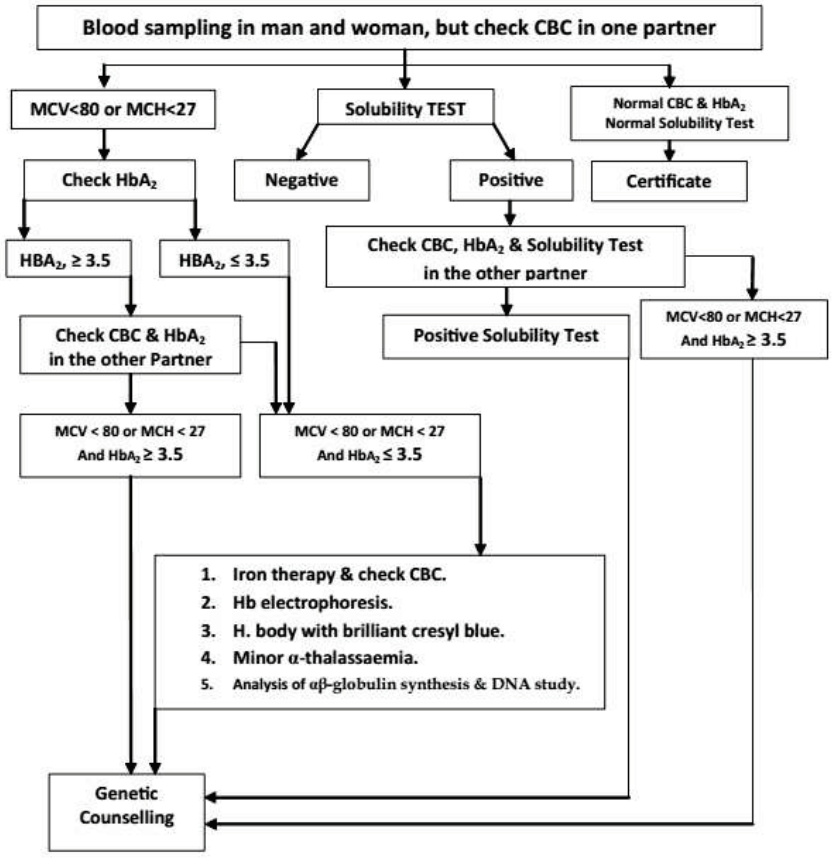

Figure 1. Recommended premarital screening program

Genetic testing

Genetic testing and screening may assist couples to prepare their health, as well as their children if they plan to marry. Genetic testing is carried out at one of six stages in the life cycle, including premarital genetic diagnosis, prenatal period, during the neonatal period, during the pre-implantation stage of embryonic development, following in vitro fertilization, when couples are considering whether to reproduce, or when a person, often on the basis of family history, recognizes a higher-than-average risk of developing a particular disease later in life. Genetic testing and screening raise some of the most difficult issues in the entire field of bioethics. On the one hand, it is clearly beneficial to reduce the incidence of severe disease, especially among children. On the other hand, it relates not only to principles of biomedical ethics, but also to religion and sociocultural issues. Deliberations about prenatal diagnosis and selective abortion are often agonizing for the people involved. Individuals and couples can exercise their autonomy by deciding whether, when, and under what circumstances they plan to have children.

Premarital counseling

Premarital Counseling (PMC) is generally acceptable from the religious and ethical point of view as well as its minimal health and economic requirements. The majority of counseling concerns haemoglobinopathies (sickle cell anaemia and thalassemia).Genetic counseling, a process by which an individual or a family obtains information about a genetic condition that may affect them, may enable couples to appropriately decide about marriage, reproduction, abortion and

health management. Genetic counseling protects the autonomy of the couple, fulfilling their right to be fully-informed about the disorder and all available options. As a service, it is offered to the members of the high-risk groups, i.e., carriers of recessive genetic disease or those with an affected member of the family. In premarital counseling, the principles and components of "Informed Consent" that are generally acceptable in western countries are also applicable to the Muslim community.

Regarding ethics and Islamic point of view, reassurance for carriers is important. Counselors should appropriately and thoroughly explain that being a carrier is not an illness and not God's punishment. Being a carrier is not shameful and is often associated with advantages for survival. In the case of sickle cell disease, the carrier state is selected by nature for survival against malaria. A carrier will have resistance to the illness later on. The advantage of knowing that one is a carrier is to be able to plan a healthy family and avoid transmitting genetic diseases. Any carrier can marry a non-carrier of that gene. Many Arab governments (Saudi Arabia, Egypt, Syria, Lebanon, Tunisia, Morocco, and Gulf countries) made a premarital medical examination mandatory. It resulted in some reduction of autosomal recessive blood diseases (such as thalassemia and sickle cell anemia). The premarital test for sickle cell, thalassemia and G6PD became compulsory. If both are carriers, they are counseled and advised against marriage, but the decision is finally theirs.

The available choices include avoidance of marriage, reproductive options for those who proceed with the marriage following prenatal diagnosis. Choosing the best option depends on availability, cost and local regulations and religious rules. For example, in Saudi Arabia, Malaysia, Indonesia, and most other Muslim countries abortion is prohibited on religious grounds and prenatal diagnosis is futile because abortion is forbidden unless the fetus is malformed. However, pre-implantation diagnosis is permitted and affordable. Thus the success of genetic counseling depends on the approach adopted by the counselor as well as the education and attitude of the couple.

Screening programs must be equitable, accessible and understood by the target population, but most importantly they must comply with the prevailing cultural, ethnic, economic and social values. In regions where inherited genetic disorders are high, knowledge and outcome of the diseases and uptake of voluntary counseling is low. This is probably because these disorders are greater in developing and under-developed countries where literacy and level of understanding are low. Culture and individual attitudes also have a role in the success of premarital testing.

Prenatal screening and diagnosis

Prenatal screening and diagnosis of genetic disorders serves two purposes. First, it identifies fetuses that are affected with a disorder. Parents may then choose to terminate the pregnancy or, if they opt to continue the pregnancy be assisted with the management of a high-risk pregnancy, be prepared for the birth with appropriate family and social support, and receive a modified delivery plan appropriate for the disorder. Second, for those with unaffected pregnancies, parents receive reassurance.

Ethical issues in genetics

Muslims, in general, will often want to consult with family members and religious scholars, particularly in aspects of religious and social relevance. Families with handicapped

children should not be blamed, criticized, but should be supported in all ways possible. Health practitioners need to adopt a sensitive approach in providing health information, paying attention to their vocabulary to ensure that unintended meanings are not communicated. Every effort should be made to minimize diagnostic uncertainty. Similarly, neonatal testing, avoiding of teratogens and provision of folate and iodine in the diet is encouraged as supportive measures. Simple tests for phenylketonuria, homocystinuria, galactosemia and many others for newborns can avert calamity for those affected.

Qualifications and tasks of the counselor

The counselor should be trustworthy, proficient, considerate, compassionate, and able to guard the confidentiality of the information he/she is given. The genetic counselor may not impose his views on his clients. Rather, he must let them reach their own decisions. The counselor's responsibility is to provide them with the necessary facts and information in plain language that they can understand easily and fully.

Premarital carrier detection is important, especially in communities where consanguineous marriages are very high. If the couple are found to be carrying the same autosomal recessive gene, then genetic counseling should be provided, and all the pertinent facts and risks to the progeny explained. If they insist on marriage, the decision is theirs, but reproductive alternatives should be discussed with them.

They should be counseled to choose a number of alternatives, should they still wish to marry.

Islamic teachings and the prevention of genetic diseases

Islamic teachings concentrate on the prevention of disease rather than cure. Islam encourages marriage and prohibits fornication and adultery. The Prophet Muhammad (PBUH) advised Muslims to choose for their daughters, husbands with good character and free from physical and social illnesses. Similarly he warned not to marry a girl only for her beauty when her character is blemished.

Premarital examination to avoid genetic diseases will be welcome especially in a community where the rate of consanguineous marriage is high. These practices are carried out in a number of Islamic countries and considered the method of choice in the prevention of single gene disorders. Congenital diseases such as rubella are virtually eliminated in many countries by vaccinating school children girls at premarital age. Syphilis and other sexually transmitted diseases (STD) will not appear if all sexual desires are channeled through marriage in accordance with Islamic teachings. Fornication, adultery, and sodomy are all harshly punished in Islamic legal code, and are considered to be the greatest sins and hence every Muslim should avoid indulging in them. Alcohol is the most frequent chemical teratogen substance causing mental retardation and congenital anomaly. Islam totally prohibits the consumption of alcoholic beverages. Similarly, smoking causes abortion, congenital anomalies and small baby, even after a full-term pregnancy. Intoxicants are prohibited according to Islamic teachings and many *fatāwā* have reiterated its prohibition. Any substance that is going to be harmful to the baby (namely teratogen) should be avoided as the Prophet Muhammad (PBUH) him is reported to have said: "Do no harm".

Conclusions

Premarital health screening, is strongly recommended for couples. The program have become widely acceptable and highly-valued in preventive healthcare. The program aims at informing prospective couples about their chances of producing affected children and ensuring that they will receive appropriate counsel and treatment. Ethical aspects and Islamic perspectives contribute to the success of the program. However, some social factors influence the acceptability of preventive program, such as local wisdom, religious beliefs, cultural norms, literacy and education level, government policies, and the attitudes of the individual couples. Scientists, medical personnel, politicians, intellectuals, religious motivators, teachers and leaders, socio-cultural organizations and activists, law and policy makers should also be involved in the program. Journalists of the electronic and mass media and newspapers as well as physicians, midwives, genetic counselors and clinical laboratory scientists involved in pre-conception or prenatal care can play a vital role in developing awareness among the people, especially prospective life partners, regarding premarital screening program.

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CONTRACEPTION

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Abstract

Contraception or birth control is a method or device used to prevent pregnancy Many different methods are available. but none is completely perfect. Sterilization for male or female is nearly 100% effective but not widely used especially in the developing countries. All existing techniques have advantages and disadvantages. The doctor's responsibility is to advise users and explain these issues before prescribing. Patient should be fully informed and can rationally choose the method most suitable for them. If there are medical reasons for not using certain methods, the physician should inform the patient and offer the alternatives.
Contraceptives used presently include non-hormonal and hormonal methods. These will be discussed with special attention to advantages, safety and contraindications.

Keywords: Contraception, hormonal, non-hormonal, male and female sterilization.

Introduction

Birth control or contraception is a method or device used to prevent pregnancy. Many different types of contraception are available. Although some have been used for a long time, however more effective and safe methods only became available in the last 20th century.
In developing countries about 220 million women who wish to avoid pregnancy are not using modern methods of birth control. [1,2]
Birth control use in the developing countries has decreased the number of deaths during and around the time of pregnancy by 40%. About 270,000 deaths were prevented in 2008 and could prevent 70% if the full demand for birth control were met. [3]
Unlike other medications and therapies, contraception is largely the patient's choice. The provider's role is to inform the method which is safe and effective for use by the patient and to educate the patient on her options. Ultimately the patient will select the method of contraception. Efficacy or failure of contraceptive method depends on the methods used and the effectiveness or its proper use by the patient.
Improvements in the currently available products, education and motivation of the user has made a great achievement in the effectiveness and safety of contraception.
Available contraceptive methods are numerous, including permanent ones like male or female sterilization and temporary methods where fertility and conception can be achieved after discontinuation. These methods include hormonal and non-hormonal preparations

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Efficiency of contraception

Factors determining whether pregnancy will occur include fecundity of both partners, the timing of intercourse in relation to the time of ovulation and the method of contraception used. Effectiveness of a contraceptive method is assessed in the long term evaluation of a group of sexually active women using a particular method for a specified period to observe how frequently pregnancy occurs. A pregnancy rate per 100 women per year using a particular method is referred to as the Pearl index. Efficacy or failure depends on perfect use or atypical or imperfect use of the method. When a method is used properly and failed, this is called method failure, but if the method is used atypically and failed, this is called use failure or patient failure.

What is the ideal contraceptive method?

The ideal method is that which is easy to use either by the woman or her husband with the least motivation, and achieves 100% effectiveness.
Additionally, it should inexpensive, safe to use with no side effects, and does not interfere with coitus or sexual function. The ideal method should not interfere with the couples' ability to conceive when the method is discontinued.

Contraceptive prevalence

This is defined as the proportion of women who are currently using or her husband (or partner) is currently using at least one method of contraception regardless of the method being used. It is typically reported as percentage with reference to married or (in union) women of reproductive age usually between 15-49 years.
Many factors need to be considered by woman, man, or couples at any given point in the lifetime when choosing the most appropriate contraceptive method. These factors include safety, effectiveness, availability including accessibility, affordability, and acceptability. Contraceptive counselling is an important contributory factor to the successful use of contraceptive methods.

Contraceptive methods

For analytical purposes contraceptive method are classified as either modern or traditional.
Modern methods of contraception: includes female and male sterilization, the intrauterine devices (IUD), the implants, oral contraceptive pills, male and female condoms, vaginal barrier methods including the diaphragm, cervical cap, spermicidal foam, jelly, cream and sponge, the lactational amenorrhea methods (LAM), emergency contraception and vaginal rings.
Traditional methods of contraception: includes rhythm (e.g. fertility awareness, periodic abstinence, withdrawal and traditional methods).
However, the decision on the methods used depends on: cultural background, factual knowledge of the method, client education, traditional ways of living, religion, and individual needs.

<u>Contraceptions are classified under two categories:</u>

- Non-hormonal contraception.
- Hormonal contraception.

Non-hormonal contraception

1. Coitus interruptus: This remains a very important means of fertility control in the third world. This method has the advantage of immediate availability, and no cost. The failure rate is 4-7 per 100-

woman year with perfect use but may reach 20 with atypical use [4,5].

2. Lactational Amenorrhea Method (LAM): ovulation is suppressed during lactation. Prolactin secretion is elevated by suckling leading to reductions in the gonadotropin-releasing hormone (GnRh) and Luteinizing hormone (LH). The duration of suppression is variable and is influenced by the frequency and duration of nursing, length of time since birth and probably by the mothers' nutritional status. If the woman is amenorrhoeic, fully breastfeeding with no supplemental food given to the infant, ovulations is unlikely before six months. The Lactational Amenorrhea Method was found to be 100% effective as contraception for 6 months if exclusive breastfeeding was practiced [6.] Other method should be used after this period. Progestin only oral contraceptives pills can be used in these cases or barrier method or IUD.
3. Periodic abstinence or natural family planning:
    a. Couples attempt to avoid intercourse during the fertile period around the time of ovulation.
    b. Calendar method, is the least effective.
    c. Mucus method; the woman feels the cervical mucus by her fingers, it becomes more slippery and copious in quantity due to high estrogen influence.
    d. Sympto-thermal method, the woman takes her morning temperature and resume intercourse three days after thermal shift. This temperature rise signals progesterone production by corpus lutium and ovulation.
4. Condoms: It is an effective method and protects from sexually transmitted diseases (STDs). Failure rates due to rupture or improper use is between 3-13%. Female condoms or vaginal pouch are used in some countries. Pregnancy rate if improperly used is around 25-50% [7].
5. Vaginal spermicides: These contain spermicidal chemicals either nanoxynol-9 or octoxynol with a base of cream or jelly. Disadvantages of these substances: it may be toxic to the normal vaginal flora, lactobacilli and the increasing risk of bacterial infection.
6. Vaginal barriers: Vaginal diaphragm, cervical cap, vault cap and vimule. All of these are available in certain countries. When used properly, it has a high rate of effectiveness, and are safe.
7. Intrauterine Devices (IUD):
    a. IUDs, are very commonly used worldwide. Those used now are copper loaded. The dose of copper varies from type to type. Most of IUDs have a band of copper either on the stem of the T-shaped devices or across the arm of the T. Most of the copper devices are approved for use up to 5 years, although some studies suggest longer periods. Effectiveness is high and about 0.2 per 100 women year became pregnant. Other devices are loaded with progesterone, like Mirena, which contain and releases levonorgestrel hormone (LGD) which act as contraceptive through its hostile effect on the cervical mucus, and endometrium. Also, levonorgestrel has a suppressive effect on ovulation. The effectiveness of LGD intra uterine system is reported as 1.1 per 100 women year[8] or even less at 0.2. [5]. Its benefits include excellent contraception and is independent of coitus. The progesterone releasing

devices reduce menstrual bleeding and cramping.

b. The risks of IUD includes infection and ectopic pregnancy. With the new devices the risk of infection is not higher than the general population. If Pelvic Inflammatory Disease (PID) occur it usually occurs within 4 months of insertion. A large study by WHO, revealed that PID increased only during the first 20 days after insertion. Thereafter the rate of PID was about 1.6 per 1000 women per year which is similar to the general population [9]. Actinomycosis has been reported with Dalkon shield, but this is not used now. Infection may increase in plastic IUDs but not with copper devices.

c. If pregnancy occurs in the patient with IUD in-situ, it will be ectopic in about 5% of cases. Compared with women using no contraception, wearing either copper devices or levonorgestrel devices leads to an 80% - 90% reduction in the risk of ectopic pregnancy[10].

d. Contraindications to the use of IUDs includes, pregnancy, history of PID, undiagnosed genital bleeding, uterine anomalies, large fibroid and chronic immune suppression. Copper allergy and Wilsons' disease are contraindications to the use of copper IUDs.

e. A woman with an IUD in place who are amenorrhoeic should have a pregnancy test and pelvic examination. If intrauterine pregnancy is diagnosed and ectopic pregnancy is excluded and the IUD string is visible, the IUD should be removed as soon as possible in order to prevent later septic abortion, premature rupture of membranes and premature birth. When the strings are not visible, an ultrasound examination should be performed to localize the IUD and to determine if expulsion has occurred. If the IUD is present there are three options for management; Ultrasound guided intrauterine removal of the IUD, continuation of the pregnancy with the device left in place, or therapeutic abortion if there is sepsis[11].

Hormonal contraception

These are female sex steroids, synthetic estrogen and synthetic progesterone (progestin) or Progestin only. They can be administered in the form of oral pills (OP), implants and injectable. The most widely used are the combined oral contraceptive pills (OCPILL). Monophasic pills which contains the same dose of estrogen and progestin are administered daily. Typically, they are administered for 21 days and discontinued for 7 days.

The 28 days version provides placebo tablets for the last 7 days. Other forms are multiphasic in which the dose of estrogen and progestin varying, similar to the level of these steroid during the normal cycles, and given for 21 days.

Other forms of hormonal contraception include injectable progestin and estrogens, progestin alone, subdermal implant releasing progestin, vaginal rings that release either estrogen-progestin or progestin alone and combined patches.

The steroid hormones used in contraception

- Estrogens: Most estrogen containing contraceptive pill contains estrogen in the form of ethinyl estradiol (EE). OC pills with 35 micrograms of EE provide blood levels adequate to suppress ovulation. Recently smaller dose of EE pills are produced which contain 20 microgram or less of EE to reduce the side effects of the

higher dose EE (35 micrograms) pill.

- Progestins: Synthetic compounds that mimic the effect of natural progesterone but differ from it structurally. There are three classes: Estrane, gonanes (19-nor progestins) and are structurally similar to testosterone but lacking a carbon at position 19, and pregnane or 17 acetoxy compounds which are structurally similar to progesterone. Only estrane and gonane are used in OCP but medroxyprogesterone acetate (provera) is the major injectable progestin. Progestins differ from each other by their affinity for estrogen, androgen and progesterone receptors. And in their ability to inhibit ovulation and to substitute for progesterone and antagonize estrogen.[12] Three new generations of progestins (norgistinate, desogestrel, and gestodene) are viewed as more selective than the other 19 nor progestin, and have little or no androgenic effect. Androgenic effect of progestin is undesirable because of its effects on lipid and glucose metabolism. Androgenic progestins also reduces the level of circulating high density lipoprotein (HDL) and elevate low density lipoprotein (LDL)[13].

Hormonal contraception types:

These come in different forms or types:

1.Combined contraceptive pill (COCP).

2.Progestine only pills (POP).

3 Hormonal implants

4.Injectable Hormone (Depo-medroxy Progesterone acetate (DMPA).

1-Combined oral contraceptives (COCP)

When COCP pills are used, pregnancy rate was as low as 2-3 per 1000 women per year, but progestine only pills, effectiveness is less and about 3 per 100 women year became pregnant. Potential user error for COCP is high when compared to injectable methods or implants.

COCP prevents ovulation by suppressing the release of gonadotropins and therefore inhibition of follicular development. Progestogen negative feedback decreases the pulse frequency of gonadotropin releasing hormone (GnRh) release by the hypothalamus which decrease the release of FSH and greatly decrease the release of luteinizing hormone (LH) by the anterior pituitary gland. Decreased levels of FSH inhibits follicular development, preventing the increase in estradiol levels. Progestagen negative feedback and lack of estrogen positive feedback on LH release prevents a LH surge. Inhibition of follicular development and the absence of a LH surge prevents ovulation. Estrogen was originally included in oral contraceptives for better cycle control and to stabilize the endometrium and to reduce the incidence of break through bleeding and inhibits follicular development.

A secondary mechanism of action of progestin containing contraceptives is to inhibit sperm penetration through the cervix into the uterine fallopian tubes by decreasing the amount and increasing the viscosity of the cervical mucus.[14,15] Other possible secondary mechanism is its effect on endometrium rendering it thin and unsuitable for implantation.

2-Progestin only pills

The mode of action depends on the dose of the compound. At low blood levels of progestin, ovulation will occur part of the time. With progestin only pill (minipill) which supplies 0.3 mg of norethindrone per day (like micronor) 40% of cycles are ovulatory, 25% have inadequate luteal function, 18% have complete suppression of follicle development. With higher blood level of progestin, basal FSH is reduced and there is less follicular activity and less estradiol production and no LH [16]. The effect of progestin as contraception is also due to its effect on cervical mucus endometrium and tubal motility.

3-Hormonal implants

Subdermal implants release levonorgestrel (Norplant), or Nexplanon. There is some follicular maturation and estrogen production, but LH peak levels are low and ovulation is often inhibited. Sustained release of progestin allows for effective levels of the hormone on contraception. It also increases the cervical mucus thickness and reduces endometrial thickness. Effectiveness is more than 99%. Implants are usually effective for three years. It has the advantage that it reduces menstrual flow, dysmenorrhea and can be used by the breastfeeding mother.

4- Injectable hormones

Depo-medroxy progesterone acetate (DMPA) or Depo-provera is an injectable contraception which contains progestin. It suppresses ovulation and increases the cervical mucus thickness and causes endometrial thinning rendering it unsuitable for implantation. Usually injection is effective for three months. It is given during the menstruation phase of the cycle, its effect is immediate, but if given later on in the cycle, the woman has to wait for one week for it to be effective.
Injectable contraception can be used during breastfeeding but should not be used in women with high blood pressure, breast cancer, history of stroke or cardiovascular and liver diseases [17].

5- Levonorgestrel loaded Intrauterine Device LNG (IUD) (Mirena)

It is a hormonal intrauterine device (IUD) which can provide long term contraception and releases levonorgestrel hormone. This cause thinning of the endometrium, partially suppresses ovulation and increase the thickness of the cervical mucus. It can be used in all ages and is effective for up to five years. LNG (IUD) can be used in lactating mothers and in women with heavy periods and safety has been shown for all ages[18].

6- Emergency contraception

Emergency contraception also called post coital contraception, is a form of birth control that may be used by women who have had unprotected intercourse or used a birth control method which has failed (e.g. ruptured condom, or forgotten OCP or rape). The treatment is often reserved for specific situations and not as regular methods of contraception. It works by preventing implantation or pregnancy (delay ovulation) but not ending pregnancy. Emergency contraception can be in the form of pills or intrauterine device. It can be effective up to 95% when taken properly [19].

(A) Emergency contraceptive pills.
Several types are used:

1.Oral pills contain levonorgestrel, and in some countries are sold over the counter under diffident names (My way,

plan B One-step, Preventeza, Take action). These pills should be taken within 3 days of unprotected sex, taken as single dose 1.5 mg or 2 dose 0.75 mg 12 hours apart.

2. Combined contraceptive pills which contain estrogen and progesterone, requires women to takes more than one pill (2-4 at a time). It is less effective than levonorgestrel pill and has side effects like nausea and vomiting.

3. Pills that contain selective progesterone receptor modulators e.g. Ulipristal, ello, ella one ,Esmya. These block the effect of progesterone and inhibit ovulation. They can be effective within 5 days of unprotected intercourse. Ulipristal acetale is taken as a single dose of 30mg [20].

(B) Intrauterine Device (IUD)

Copper device inserted up to 4-5 days of unprotected coitus can prevent implantation and interfere with sperm motility. Women can also choose to keep the IUD as an ongoing method of contraception. It is not advised to use IUD in case of rape because of the fear of sexually transmitted infection or women with untreated pelvic infection[21,22].

Non-Contraceptive Health Benefits of Hormonal Contraception

Hormonal contraception including the OCP and some IUD (hormonal devices) and implants offer a range of benefits beyond pregnancy prevention.

Early established benefits:

- Regulates menstrual cycle, improves menorrhagia and anemia related to heavy menses.
- Decrease dysmenorrheal and premenstrual syndrome.
- Reduces the development of functional ovarian cyst.
- Reduces the risk of ectopic pregnancy.
- Reduces benign uterine disease likes fibroids.
- Reduces pelvic inflammatory diseases.
- Reduces the risk of endometrial, ovarian cancer and risk of colorectal cancer.
- Reduce risk of benign breast diseases.

Other benefits but which are not well-established include less incidence of osteoporosis, endometriosis, rheumatoid arthritis and atherosclerosis[23].

Oral hormonal contraception and drug interactions

Some drugs affect the function of liver enzymes and can reduce the effectiveness of oral contraceptive pills e.g.:

- Antibiotics (amoxicillin, cephalosporine, tetracycline).
- Anticonvulsants (phenytoin, primidone, topiramate, carbamazepine, phenobarbital).
- Metronidazole (flagyl).
- Antifungal (griseofulvin).
- Anti-tuberculosis drugs (rifampicin).
- Diuretics (spironolactone).
- Hypotonics (dichloride phemazene).

Special situations when prescribing COCP

1- Women over 35 years

2- Adolescents

In healthy women over the age of 35 years and non-smokers, the benefits of OCP exceed the risks. Women can continue until menopause with additional benefits to contraception including: cycle control, prevention of functional benign ovarian cysts, prevention of endometrial cancer reducing perimenopausal symptoms and maintain bone density. With lower doses of estrogen, the risk of

cardiovascular complications is not significant[24].

Adolescent female under 19 year, may use COCP with additional benefits such as cycle control, less dysmenorrhea, improved acne and hirsutism when more estrogenic and newer non-androgenic progestin formulation are used.

Side effects of oral contraceptive pills

It is generally accepted that the health risks of oral contraceptive are lower than those from pregnancy and childbirth. The most common side effects is breakthrough bleeding, nausea, bloating, headache breast tenderness, swelling of ankles, weight changes and fluid retention. Most of these side effects are tolerated and improve after a few months of use. Although some may be the reason for discontinuation of use.

Health Risks Associated with Hormonal Contraception

Effect on coagulation system

Combined oral contraceptive may influence coagulation increasing the risk of deep vein thrombosis (DVT) and Pulmonary Embolism (PE), stroke and myocardial infarction (MI). High dose estrogen in OCP causes increase in the production of clotting factors such as factor V, factor VII, factor X and fibrinogen. The progestin component also influences the clotting factor responses.

Evidence from observational studies suggests that current use of COCP is associated with 3-3.5% fold increase in vascular thromboembolism (VTE) compared with non-users of COCP. Despite this increased risk, the number of VTE events in women using COCP remains very small.

Also, VTE risk is lower during COCP use than during pregnancy and post partum period. The risk of VTE is increased in women who are overweight, increasing age and women with thrombophilia.

Epidemiological evaluation of COCP and vascular disease indicated that VTE was the effect of estrogen limited to current users, and the risk disappears three months after discontinuation of the pills [25]. Risk or VTE is higher in the months immediately after initiation of COCP [26].

The type of progesterone in COCP was found in some RCTs to affect the incidence of VTE. Low dose estrogen pills containing cyproterone acetate, desogestral, gestodene or DRS was associated with significant 1.5-2-fold risk of VTE compared to the use of COCP containing levonorgestrel (LNG). The dose of estrogen was also found to influence the incidence of VTE [27,28]. The smaller the dose of ethinyl estradiol the lower the risk of thromboembolism.

Women with inherited thrombophilia have increased risk of VTE than women without thrombophilia. A systemic review meta-analysis of 14 observational studies concluded that COCP users with mild thrombophilia (factor V Leiden heterozygosity and Prothrombin G20210A mutation) had 6 times the risk of VTE compared to COCP users without thrombophilia [29]. The dose and formulation of COCP, obesity, smoking and the presence of cardiovascular disease affect the risk of VTE.

Arterial thrombo-embolism disease

The current use of COCP is associated with a very small increased risk of myocardial infarction (MI) and ischemic stroke and appear greater with higher doses of estrogens. The use of COCP[30] by women with significant

additional risk factors for arterial disease should be strongly cautioned or avoided. These risk factors are women age over 35 years, who smoke, and with multiple risk factors for cardiovascular disease like hypertension, high BMI, dyslipidemia, diabetes and women having migraine with aura. A family history of ATE events does not preclude the use of COCP[31].

Cochrane Review and meta-analysis concluded that the risk of ATE, myocardial infarction and stroke increase with high doses of estrogen and did not vary according to the progesterone type[32].

Other risk factors which increase the incidence of vascular thrombosis and should preclude the use of COC include a history of idiopathic VT and women who have a close family history (parents and sibling) of idiopathic VT. These women have higher incidence of congenital deficiencies in important clotting measurements especially antithrombin III, protein S and C, and resistance to activated protein C.

Other risk factors like systemic lupus, anticoagulation, malignancy, immobilization and varicose veins are not risk factor unless they are very extensive[33].

Breast cancer and hormonal contraception

Women should be advised that the current use of combined hormonal contraception is associated with a small increase in the risk of breast cancer and this reduces with time after stopping the pills.

A large Danish study comparing current or recent use of COCP, to non-use of hormonal contraception, showed that the risk appeared to increase with the duration of use.[34] No major differences in risk were observed between COCP containing different progestogens. Recent studies from the Oxford family planning association contraceptive study and meta-analysis of 44 observational studies found no link between the duration of COCP use and breast cancer risk.

The risk of breast cancer declined gradually [35,36,37]. After cessation of COCP use with no significant increased risk after ten years of non-use [38,39].

In women with a family history of breast cancer there were conflicting results in the risk between users and non-user of COCP. Several studies suggest that women with a family history of breast cancer who have ever used COCP at no higher risk of breast cancer than women with a family history who have never used COCP.[40,41]

The United Kingdom Medical Eligibility Criteria for COCP (UKMEC) does not restrict use of COCP for women with a family history of breast cancer[42]. While UKMEC states that for carriers of known gene mutation associated with breast cancer (e.g. BRCA mutation) the risks of using COCP outweigh the advantages as women with this gene have higher risk of breast cancer [43,44,45].

Women should be advised that the current use of COCP for more than 5 years is associated with a small increased risk of cervical cancer. The risk reduces over time after stopping the pills and is no longer increased after 10 years of cessation [46].

Contraception for women age 40 years and over

Fertility naturally decreases as age increases, and women experience a relatively steep decline from the mid 30s onwards mainly due to the diminishing quality and quantity of oocytes. The probability of pregnancy for a woman having unprotected coitus over the course of a year is around 10-20% for women aged 40-44 and closer

to 12% for women 45-49.[47] Therefore effective contraception is required until menopause to prevent unintended pregnancy. Options for these women are, hormonal contraception, barrier method, IUD, sterilization and natural methods. Natural methods may not be effective due to cycle irregularity in this age group.

Important points to be discuss with women in this age before prescribing hormonal contraception are:

1.Hormonal contraception should be carefully used in women with risk of CV disease, VTE, and breast cancer.

2.Contraceptive hormones do not affect onset of menopausal symptoms.

3.Women choosing LNG (IUD) can keep it in-situ even until the age of 55 if inserted at age 45 or over.

4.Progesterone only pill (POP) and progesterone only implant (IMP) is not associated with increased risk of VTE, stroke or myocardial infarction and has not been shown to affect bone mineral density (BMD).

5.Combined OCP with levonorgestrel or norethisterone should be considered for women aged over 40 due to its potentially lower VTE risk.

6.COCP with $\leq 30\mu g$ ethinylestradiol should be considered and not higher estrogen content.

7.Women who smoke should be advised to stop COCP at the age of 35 years. [48]

<u>When contraception is no longer needed.</u>

1. When women are menopausal (one-year amenorrhea)
2. All women who reach 55 years.
3. IUD should not be left in-situ indefinitely after it is no longer required as it could become a focus for infection.
4. Hormonal measurement, FSH and estradiol are useless as women take COCP will have suppressed FSH and estradiol production.

Conclusions

Modern methods of contraception are safe and when used, it should be tailored according to the individual woman. Her medical, social circumstances and compliance with the method used are important when deciding which contraception methods are to be used. When hormonal contraception is prescribed, proper counselling should be done to include information regarding methods of use, side effects, benefits and risks and when to discontinue its use.

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FAMILY PLANNING

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Abstract

Family planning is considered as one of the major health achievements of the 20th century. It allows individuals to achieve desired birth spacing, regulate the family size and it contributed to improved health outcomes for infants, women and families [1,2].
The United Nations and the World Health Organization defined family planning as services leading up to conception and does not promote abortion as a family planning method [3].
Keywords: Family planning, birth spacing, contraception.

What is family planning?

It includes educational, medical and social activities which enable individuals to determine freely the number and spacing of their children and to select the means by which this may be achieved [1].
Family planning may involve the consideration of the number of children a woman wishes to have including the choice to have no children as well as the age at which she wishes to have them. These matters are influenced by several factors such as career considerations, financial position, any disabilities that may affect their ability to have children and to raise them.
Family planning is sometimes used as a synonym for access to and the use of contraception. However, it often involves methods and practices in addition to contraception.
Contemporary notions of family planning, however tend to place a woman and her childbearing decision at the centre of the discussion, despite notions of womens' empowerment and reproductive autonomy having gained traction in many parts of the world. Family planning allows them to attain their desired number of children and determine the spacing of their pregnancies.

Purposes of family planning

According to the WHO (2018), 214 million women of reproductive age in developing countries who do not want to become pregnant are not using modern methods of contraception (4). This could be a result of the limited choice of methods, lack of access to contraception, fear of side effects, cultural or religious opposition, poor quality of available services, user provider bias, or gender-based barriers. In Africa 24.2% of women of reproductive age do not have access to modern contraception methods. In Asia, Latin America the unmet need is 10-11%.
According to the United Nations Department of Economic and Social Affairs, in the least developed countries 22% of the population do not have access to contraception and only 4% use contraception[5].

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North America has the highest rate of contraceptive use (73%) and lowest unmet needs (7%)[5]. Europe has 69% contraceptive use rate and 10% unmet needs.

Among the purposes of family planning are to encourage men and women to formulate a reproductive life plan, to help them in avoiding unintended pregnancies and to improve the health of women and reduce adverse pregnancy outcomes[6].

Raising a child requires significant amounts of time, social, finance and environmental resources. Planning can help assure that the resource are available[7,8].

Therefore, the purpose of family planning is to make sure that any couple man or woman who has a child has the resources that are needed in order to complete this goal[9].

If the person does not wish to have a child at a specific time, they can source the methods that are needed to prevent pregnancy such as birth control methods, or physical protection and prevention.

Family planning and womens' health

According to the WHO; maternal health refers to the health of women during pregnancy, childbirth and post-partum periods. While motherhood is often a positive and fulfilling experience, for too many women it is associated with suffering, ill-health and even death.

Both early and late motherhood have increased risks. Young teenagers face a higher risk of complications and death as result of pregnancy. Waiting until the mother is at least 18 years old before trying to have a child improves maternal and child health outcomes[10,11]. If additional children are desired after a child is born, it is healthier for the mother and the child to wait at least 2 years after the previous birth before attempting to conceive, but not more than 5 years. After a miscarriage or abortion, it is healthier to wait for at least 4-6 months[11].

When planning a family, women should be aware that reproductive risks increase with the age of the woman. Older women have a higher chance of bearing a child with trisomy syndromes, multiple births, and are at higher risk of developing gestational diabetes, hypertension, renal disease, anemia, mal-presentation and the increased need for caesarian sections. Older womens' bodies are not as well suited for delivering a baby which increases the risk of prolonged labor and fetal distress.

The United Nations Population Fund (UNFPA) says that "Contraceptives prevent un intended pregnancies, reduces the number of abortions and lower the incidence of death and disability related to complications of pregnancy and child birth[12]. If all women with unmet needs for contraception were able to use modern methods, an additional 24 million abortions, 6 million miscarriages, 70,000 maternal deaths and 500,000 infant deaths could be prevented[12], and 24% reduction of women dying from postpartum hemorrhage and unsafe abortions[13].

Family planning and fertility awareness

Fertility awareness refers to a set of practices used to determine the fertile and infertile phases of a woman's menstrual cycle. Fertility awareness methods may be used to avoid pregnancy, to achieve pregnancy or as a way to monitor gynecological health. Methods identifying infertile days have been known for long time, but scientific knowledge gained during the past century has increased the number and the variety of methods, e.g symptom-

thermal method, which achieve success rates of 99% if used properly[14].

Family planning and economics

Family planning can prevent closely spaced and ill-timed pregnancies and births which contributes to infant mortalities. It enables people to make informed choices about their reproductive health. It represents an opportunity for women to pursue additional education and paid employment. Having smaller families allows parents to invest more in each child. Reducing adolescent pregnancies, in addition to eliminating pregnancy and childbirth complicationswhich are specific to this age. Many adolescent girls who become pregnant have to leave school and interrupt their university education. This will have long-term impact on them as individuals, their families and communities according to studies in USA and Denmark. The cost of prenatal care and childbirth for normal delivery is approximately 7-10 thousand US dollars. Investing in family planning has clear economic benefits and can help nations to achieve their demographic balance[15].

The negative consequences associated with unintended pregnancies are greater for teen parents and their children. Nearly 80% of pregnancies in mothers aged 15-19 years are unintended[16]. These teenage mothers are less likely to graduate from high school and the average family income is less as compared with those who delay childbearing until their 20s. Similarly, early fatherhood is associated with lower educational attainment and income [17,18].

Obstacles to family planning

There are many reasons why women do not use contraceptives. These include, logistical problems, scientific and religious concerns, limited access to publicly funded services, limited access to transportation in order to reach health clinics, lack of education and knowledge, limited access to insurance coverage and the myths and adverse effects about contraception. Opposition by partners, families or communication are important barriers to family planning[19,20].

Family planning for many people is not a priority in their lives and contraception are often not used until after having children. Many couples don't use contraception until after they have had all of their intended number of children they want.

Family planning in Islam

Muslims strive to build a strong family and community bond and they welcome children as a gift from Allah (God).

The *Qur'an* does not specifically refer to contraception or family planning, but there are verses forbidding infanticide. There are also no explicit evidences from the traditions of the Prophet (PBUH) which are against contraception. Islamic medicine have known about birth control for centuries, and Muslim physicians, the likes of Avicenna and Al-Razi have both referred to different methods of contraception. Qur'an warns Muslims from killing their children for fear for want.

"...وَلاَ تَقْتُلُواْ أَوْلادَكُم مِّنْ إِمْلاقٍ نَّحْنُ نَرْزُقُكُمْ وَإِيَّاهُمْ..." سورة الأنعام: اية 151

"*…You should not kill your children from fear of want…*". Glorious Qur'an: 6:151

"...نَّحْنُ نَرْزُقُهُمْ وَإِيَّاكُم..." سورة الإسراء: 31.

"*We provide sustenance for them and for you*". Glorious Qur'an: 17:31

Some Muslims have interpreted these verses as a prohibition against contraception as well as infanticide. The advocates for family planning have rationalized against this interpretation and have scientifically demonstrated that contraception either prevents ovulation,or fertilizationor implantation and does not terminate pregnancy after implantation.

The reasons for the differing ideas about contraception are due to the different opinions and beliefs of individuals in the community about marriage, sex, family and human rights.

Opinions of Muslim scholars

Only the most conservative scholars prohibit birth control in all instances. The majority of Muslims scholars opine that contraception is permissible with the wife's consent, because Islam recognizes the wife's right to sexual fulfillment and procreation. Imam al-Ghazali (1058-1111) is a leading proponent of this view basing his opinions on a fundamental principle in *usul al-fiqh*, the default ruling being permissibility in the absence of a clear prohibition or silence of the authenticated texts in matters related to social transactions or *mu'amalat*. He notes that there is no text in the Quran or the Hadiths to prevent a consenting couple from having fewer children.

Jabir, a companion of the Prophet said that, *azl*, coitus interruptus, was practiced with the knowledge of the Prophet (PBUH) and he did not object to it. Jabir added, "this happened at the time when the Quran was still being revealed, had it been haram (prohibited), the Quran would have forbidden it"[21].

Imam al-Ghazali said: "This,*azl*, is neither like abortion nor it is like infanticide, because the latter two involve acts against existing beings. Existence has stages, and the wrong against each stage is graded …"[22].

The prophet said, "It is a great misery to have too many children without the means to support them."[23]. He also said, "Too many children are the other face of poverty, and fewer children are the other face of comfort." [24].

Virtually all scholars consider allowances for the mother's health and most allow for at least some form of birth control when it is a mutual decision by both husband and wife.

The methodsof contraception was also debated by the scholars. Most modern contraceptive methods do not interfere with the implanted embryo but prevents ovulation, fertilization and implantation and are therefore permissible. The couple can stop using them anytime in order to conceive.

The Islamic Medical Association of North America (IMANA) states that contraception for a married couple is permitted for several reasons including to preserve the health of the mother, and for social and economic reasons. It must be practised with the mutual agreement of both the husband and wife. The method used must be reversible and are not harmful. Contraceptive methods which can lead to abortion are not allowed[25].

Sterilization whether by vasectomy or tubal ligation, as a national policy for family planning or population control is unlawful[26]. Sterilization at an individual level is permissible, provided that both husband and wife consent to the procedure which satisfies the following conditions:

1.When there is significant medical contraindication to pregnancy and there is a significant risk to the wife's health if she conceives.

2. When other methods of birth control have failed or they are causing significant side effects.
3. When genetic disease of the husband or wife or both poses a high risk of being transmitted to the fetus (autosomal dominant or autosomal recessive condition when both wife and husband are carriers).
4. Beyond these factors and when done for family planning, when the couple are satisfied with the number of children they have, some scholars approve it, but it is disliked (*Makrouh*)[27,28].

Medical Ethics and Contraception

The primary concern should always be the welfare of the patient concerned. This goes with respecting the autonomy of the patient. Doctors must respect the patient's rights to make their own decision, which means, the doctor should provide the method the patients prefer unless there is a medical reason not to do so.
Doctors should make sure the patient gets the information and advice they need to be able to choose wisely.
Doctors should explain the methods available and help the patient to weigh the advantages and disadvantages of the methods, so as to make the best choice.
Doctors must make sure that the patients are able to choose the method with the least adverse effects.
Doctors should when prescribing contraception discuss the methods with the woman and her husband. It is permissible for women to use contraception without the permission or consent of her husband as long there is harm in becoming pregnant and there is no harm to her from using a specific method for contraception.
Doctors have the obligations to maintain the patients' confidentiality. This issue comes under consideration when prescribing contraception to unmarried women or teenagers seeking help with contraception.
The duty of the doctor, besides respecting the patients' confidentiality, should take into consideration the medical, mental and physical state of their patients.

Conclusions

Islam favours marriage and having many children in the family is praised. But, there are circumstances when it is allowed to opt for smaller families by preventing pregnancies. Family planning empowers couples to determine the spacing and the number of children in their family, using various permissible methods of contraception.
The majority of Muslim scholars allow the present methods of contraception with the mutual agreement of both the husband and wife.

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PREVENTION AND TERMINATION OF PREGNANCY: ETHICAL CONCERNS

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Abstract

The prevention of unwanted pregnancies, its different modalities and applications continues to be a subject of debate within the healthcare fraternity. Research in family adjustment involves several invasive and noninvasive methods of contraception. Unimpeded use of contraception contributed to social and cultural drifts resulting in scores of ethical and cultural issues. One such result is that extra marital sexual relationships have become accepted in those societies. Termination of pregnancy/abortion is one of the contentious issues discussed in medical ethics. Contemporary science affirms, that life is present from the moment of conception, though the nature and sustainability of life is questionable. From the viewpoint of human rights, a human being is not entitled to take the life of another human being rather it is obligatory to protect the life of other human beings. Faith plays an important role in setting standards for socio-economic wellbeing, creating harmony and respect in the society.

This essay attempts to understand the core issues, present current ethical dilemmas of contraception and termination of pregnancy (TOP). Different contraceptive methods are discussed and analyzed. Ethics concerning TOP are analyzed. Rights of the mother and fetus, predicaments of abortion of a malformed fetus, abortion when the life of the mother is at risk and the definition of life and its sanctity is discussed with reference from the light of the Quran and *Sunnah* (traditions) of the Prophet and *fatawa* (decrees) of Islamic scholars.

Keywords: prevention of pregnancy, termination of pregnancy (TOP), contraceptive methods, ethical concerns, fetus, abortion, Islamic perspectives.

Introduction

Getting pregnant and having a baby are considered most joyous times in many women's' lives. However, not all pregnancies are desired and not every pregnancy is elated by every woman. While pregnancy is exciting, it could be stressful for many women and couples. Many women try to avoid pregnancy, due to economic, social, cultural and health related reasons and if they get pregnant unexpectedly, may choose to terminate it. Some people simply may not afford a child due to personal reasons or to avoid the liability of child raising.

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In medical practice, a range of birth control and abortifacients are available. Some of the methods used to prevent the pregnancy are: abstinence, sponge (today sponge); the Patch, vaginal ring (Nuva ring), birth control pills, injection (Depo-provera), implant (Implanon and Nexplanon), female condom, breastfeeding as birth control, cervical cap (Fem cap),withdrawal (coitus interruptus), vasectomy, diaphragm, fertility awareness-based methods (FAMs), morning-after pill (emergency contraception), condom, spermicide, intra uterine devices (IUD) and sterilization for women (tubal sterilization). The physician, in consultation with the couple, selects one of these methods for the prevention of pregnancy. When a pregnant woman decides that she does not want to continue or her physicians decides that carrying this pregnancy to term may cause harm to the pregnant woman, a decision to terminate the pregnancy is made.

Muslims believe, a child is one of the greatest gifts of Almighty Allah; thus, mothers are held in high esteem in Muslim communities. A verse in the Glorious Qur'an states:

"And We have enjoined upon man, to his parents, good treatment. His mother carried him with hardship and gave birth to him with hardship, and his gestation and weaning [period] is thirty months. [He grows] until, when he reaches maturity and reaches [the age of] forty years, he says, "My Lord, enable me to be grateful for Your favor which You have bestowed upon me and upon my parents and to work righteousness of which You will approve and make righteous for me my offspring. Indeed, I have repented to You, and indeed, I am of the Muslims[1]*."*

Ethical issues related to prevention and termination of pregnancy

In Western societies extra-marital sex is neither regarded as sinful nor immoral; and with such increasing sexual freedom, the family system has suffered, contributing to high divorce rates. This social and cultural drift generated scores of ethical and cultural issues in those societies. There is great demand for birth control as well as abortions often for economic reasons[2]. The West spent a lot of money and effort in the past on reducing its population. This preferred lifestyle has been pursued in other countries of the world including Muslim countries. World organizations, like the World Health Organizations (WHO) and others have invested in the introduction of new and effective birth control methods all over the world[3].

Prevention of pregnancy, includes several methods, some of which are invasive and others are non-invasive and are mostly used by the females. Some methods are free of side effects but the majority have adverse effects e.g. hormonal methods and intra uterine devices. The surgical methods of prevention and termination of pregnancy do carry risks[3].

Physicians exercising their professional and ethical obligations, must adhere with the generally accepted basic principles of medical ethics, autonomy, beneficence, non-maleficence and distributive justice. These principles underscore the importance of patient's safety, individual rights, self-determination and their legal expressions. Making decisions is not only left to the physicians but also governed by ethical principles and the law[4]. Therefore, a patient-physician relationship works when each can trust the other and it is the responsibility of the physician to determine the best possible diagnostic tools, therapeutic options and clinical outcomes for his patients.

There are no ethical restrictions in the prevention of pregnancy if the methods are undertaken within judicious safety margins and all rights and privileges of the individuals are protected. When pregnancy is already

established and its termination is considered, thoughtful ethical concerns are raised and the practice becomes seriously questioned even in the West[5].

Several questions need to be answered prior to discussing the subject: a) When does a developing embryo become a person? b) Can the life of a person be ended by procedures by others? c) Preventing something coming into existence denies a future of value? d)Is not the right to life inherent in a person? e) Who is a human being[6]. Opponents of abortion always argue that it is actually the killing of a human being, therefore, condoning of abortion is giving the doctor the right to kill a human being in the womb at the request of the mother and thus is morally wrong. TOP in reality is a conflict of rights between two persons, the mother and the fetus. Does the mother have a right to kill a fetus in her uterus. The proponents argue that, an unborn fetus does not have a right to life. They also argue that a woman is not under any obligation to conceive children if it would be harmful to her life or stop her from achieving her other goals in life. TOP for specific indications is legally allowed in certain countries, but there is a controversy in many countries as to whether a pregnancy could be terminated at all. Others emphasize that a woman has a fundamental right to decide for herself as to whether pregnancy should be terminated or not[7]. They argue that it is important to avoid burdening an individual and avoiding harm at all cost and to maintaining the autonomy of the individual (the pregnant woman). Abortion should not be used as the method to stabilize the population growth rather should be reserved for strict indications described in the law of the land. When fetal abnormalities are diagnosed, TOP can be considered. Each case should be discussed and approved by the institutional ethics review board[8]. It is universally agreed that killing an innocent life is totally wrong, there is no unwanted child and right to live is equal to all including fetuses. Being a mother is just an option for a pregnant woman and she is guaranteed a free and informed choice. All children deserve a loving home and pregnant women should be persuaded to choose life rather than abortion. Not all abortions are legal or illegal, sometimes abortions are ethical but most of the times they are unethical.

To compel a woman to bear unwanted children is a form of ethical despotism. Promotion of freedom and the prevention of suffering are fundamental goals, which society ought to support. Abortion is inherently different from other procedures because no other procedure involves the purposeful termination of a potential life. If the fetus is a person, then it has the rights that belong to persons, including the right to life. The concept of personhood, in other words is the bridge that connects the fetus with the right to life[9]. Ethical dilemma revolves around certain questions namely whether the personhood of the fetus is granted by the mother, and thus the fetus can become a non-person at the discretion of the mother. However, how can the personhood of a human being be decided by another person? The proponents of abortion rationalize that a person cannot be forced to be burdened by the responsibility towards other individuals. Women not wanting their lives changed by the birth of a baby particularly in the case of young or unmarried women or when the pregnancy was unplanned or unwanted, or when there are relationship issues or if the woman's health is at risk or if the pregnancy is the result of rape or incest, the woman should not be forced to do continue with the pregnancy.

The doctor should discuss the matter with the pregnant woman and other related parties. Calm reflection can lead to avoidance of abortion. Doctors may consider the pregnant woman's actual or reasonably foreseeable environment, in assessing the risk of injury to

her health. Congenital anomalies contribute a significant proportion of stillbirths, infant morbidity and mortality. A debate regarding aborting a malformed fetus still exists and will be discussed.

In Jewish theology abortion is prohibited in the *halachic* view, based on the verse, "Whosoever sheddeth the blood of man in man, his blood shall be shed" (Genesis 9:6). Here, "man in man," is understood to be a fetus, and feticide is equated with murder[10]. However, compelling necessities where most of the Jewish scholars permit an abortion when mother's life is in peril, when pregnancy is causing a fatal illness and everything is done to save mother's life even it violates the commands of *Torah*. This danger to the mother's life does not necessarily have to be definitive; it can be a probable threat to the mother's life[11-12].

According to Catholic beliefs, a human being has no right to take the life of another human being. Human life begins at conception and termination of pregnancy at any stage of development of the conceptus is the killing of innocent human life. Therefore, abortion should not be permissible[13]. Catholics consider, that necessity can only be used to override the prohibition of abortion and approve the principle of accepting a lesser harm. Following this principle Catholics only allow harm to fetus if mother's life is in actual or impending danger thus saving mother's life by termination of pregnancy is good, while death of the fetus is an indirect evil[14].

Termination of abnormal pregnancy

Certain fetal abnormalities are incompatible with life and abortion of such fetuses is allowed provided it is approved by the institutional review board. Examples of such anomalies are anencephaly and bilateral renal aplasia. Such fetal abnormalities are diagnosed by reliable prenatal diagnostic procedures. However, debate regarding aborting a fetus with an anomaly that is compatible with life such as Down's syndrome still exists and parents must be given accurate information regarding any such structural or functional abnormalities. This discussion should include how the anomalies will affect the newborn/child both physically and mentally as[15] well as any possible treatment and long term prognosis in a clear, sympathetic and timely fashion and in a supportive environment that ensures privacy[16].

Prevention of pregnancy - Islamic Perspectives

Islam accords great importance to the institution of marriage and regards it as the means to perpetuate humans, and as a moral safeguard. It views man and woman as complementary to each other and the glorious Qur'an describes them as garments for each other[17] and sees marriage as a means of peace and tranquility for both of them.

"*And of His signs, another one is that He created for you mates from among yourselves that you may find comfort with them*.... -[18].

Sexual relationships outside marriage, whether in the form of pre-marital sex or extra-marital sex, are therefore regarded as sinful in Islam; whereas the institution of marriage, which constitutes the family system has been highly cherished. On the contrary, in the contemporary West, extra martial relationships are not considered as sinful or immoral leading to disintegration of the family system. Other than ethical and legal issues, the number of single parent children has also increased in those societies and therein emerging of new lifestyles, where birth-control methods to prevent unwanted pregnancies are a norm[19]. Islam, however,

opposes these practices. In the first place, it is strongly against any kind of moral laxity in sexual life. Sex, according to Muslims' belief, is a Divine blessing, and therefore it must fulfill the purpose for which it is gifted, that is, the preservation of the human race as well as the satisfaction of natural desires in a lawful way. More importantly, Muslims believe that Allah is the Provider; He is responsible for feeding His creatures, regardless of their being believers or disbelievers. What is required is that one must struggle and work hard to earn a living, with faith in Allah as the Provider and Sustainer[20]. Accordingly, most Muslim scholars maintain that the use of birth control methods/contraception is not allowed as a state policy, while at the individual level it is allowed with the consent of the wife. The permanent methods of contraception (sterilization) are however only allowed in certain situations, such as where the health or the life of the mother are at risk[21]. These include; tubal ligation, hysterectomy, and vasectomy (open surgical or laparoscopic) in males[22].

Islamic teachings forbid Muslims to look upon their children as a burden on themselves as well as on their economies as a whole; rather, it gives value to human resources, apart from acknowledging the basic human instinct of nurturing and caring for one's offspring. The Glorious Qur'an teaches Muslims to strive and struggle, and to trust Allah. Infanticide or killing one's own children is, hence, unlawful and a grievous sin in Islam.

Islam upholds that it is not man, but Allah who is the Provider, and therefore it is repugnant to the spirit of Islam to reduce the size of the family for economic reasons. To consider oneself as the source of livelihood for one's children is tantamount to usurping the role of Allah in this matter, which in itself is a great sin. Islam advocates that children should be regarded as a great blessing from Allah. The Glorious Qur'an encourages the believers to be more procreative:

"Likewise, wealth and children are an attraction of this worldly life... "[23] *and also: "He will send abundant rain for you from heaven, help you with wealth and sons, and provide you with gardens and flowing rivers".*[24]

The Prophet ﷺ in a similar context said: "*Marry women who are loving and very prolific, for I shall brag other nations by your numbers*."[25]

However, being a religion that is not confined to any particular time or space, Islam provides flexibility in applying its teachings to birth control. Muslim scholars state that a married couple may opt for fewer children with mutual consent, as emphasized by the Hadith which affirms that the *Azl* (coitus interruptus) was not prohibited by the Prophet Muhammad ﷺ: *Abu Sirma said to Abu Sa'id al Khadri (may Allah be pleased with him): 0 Abu Sa'id, did you hear Allah's Messenger ﷺ mentioning al-azl? He said: Yes, and added: We went out with Allah's Messenger ﷺ on the expedition to the Bi'l-Mustaliq and took captive some excellent Arab women; and we desired them, for we were suffering from the absence of our wives, (but at the same time) we also desired ransom for them. So we decided to have sexual intercourse with them but by observing 'azl (withdrawing the male sexual organ before emission of semen to avoid conception). But we said: We are doing an act whereas Allah's Messenger is amongst us; why not ask him? So we asked Allah's Messenger ﷺ, and he said: It does not matter if you do or not do it, for every soul that is to be born up to the Day of Resurrection will be born*[26]."

Various Muslim scholars, in the light of the *hadith* about '*Azl*, have concluded that coitus interruptus is not the same as abortion, nor is it like infanticide.

The High Council on Research (an official body of the Kingdom of Saudi Arabia on Ethical Issues) ruled in 1965 that the use of contraceptives is allowed except if they lead to permanent infertility, which is forbidden. A similar prohibition was made by the Jurists Council in Saudi Arabia[27] held at Jeddah in 1988, and The Council of the Islamic *fiqh* Academy during its fifth session in Kuwait on December 10-15, 1988. It was followed by the declaration of several Islamic scholars who concluded that, temporary means of prevention of pregnancy are allowed and there is nothing in the Qur'an and Sunnah against these practices of using temporary means of prevention of pregnancy. On the other hand, the vast majority of Islamic scholars consider sterilization procedures, whether in the male or female, without any genuine need and medical advice, prohibited, and therefore, not to be performed[28].
Therefore, birth control by preventing pregnancy is permissible at the individual level, if the prescribed method does not have any adverse impact on the health of either spouse, and if it does not lead to permanent sterilization[29]. Whichever permissible method is to be adopted; the couple must decide between them. Besides, most Islamic scholars are against campaigning for the prevention of pregnancy[30].

Termination of pregnancy - An Islamic perspective

Abortion is widely practiced in the world today. During pre-Islamic days, the ignorant Arabs used to commit infanticide for fear of want or for the shame on the birth of a girl. Some of today's women who are supposed to be more enlightened, resort to abortion or avoid pregnancy because of the unwillingness to shoulder the responsibility of children, and because, they want to enjoy their freedom. Similarly, there are people who resort to abortion in order to avoid a girl child. Recently, sale of aborted fetuses is taking place for transplantation of tissues and organs, or to make expensive cosmetics for skin. Thus, there are many ethical and medico-legal issues involved in abortion since it is a matter of great concern where a living fetus is aborted and is denied its right to develop into a human being. The Qur'anic instruction in this regard is very clear:

"...Not to kill your children making the excuse of inability to support them — We provide sustenance for you and for them ...[31]".

Moreover, in response to a question by a companion" which offence is the most grievous in the eye of Allah", Prophet Muhammad ﷺ said: "*That you associate a partner with Allah (despite the fact) that He created you. He (the man) said: What next? He (the Prophet) replied: That you kill your child out of fear that he would join you in food"[32].*

Muslim scholars have unanimously concluded that abortion after the breathing in of the spirit/*Ruh*, that is, after the first four months of pregnancy (120 days) is forbidden. They however differed as to whether abortion is permissible before the breathing in of the spirit, that is, before the first four months or not. Some of them categorically prohibited it, while others held that it was permissible before the first forty days but not after that. They also differed with regard to its necessity, or the reasons justifying it[33]. The above rulings are derived from the following *hadith*: *"The creation of anyone of you is gathered in the womb of his mother for forty days as a nutfah {drop} then later an alaqah (blood clot) for the like of that, then later a*

mudghah(morsel of flesh) for the like of that. Then the angel is sent to him and breathes the ruh (spirit) into hirn[34]."

This and the *hadith* that follows have been interpreted in two ways, based on how the actual Arabic text is translated; one as mentioned in the text here, where each stage is 40 days (total 120 days); the other where all three states are completed within the same 40 days, thus the *Ruh* is entered at/after 40 days not 120 days. Furthermore, the science of embryology shows that by 6 weeks (42 days) the embryo is flesh-like. "(The matter of the creation of) a human being is put together in the womb of the mother in forty days, and then he becomes a clot of thick blood for a similar period, and then a piece of flesh for a similar period. Then Allah sends an angel who is ordered to write four things. He is ordered to write down his deeds, his livelihood, his (date of) death, and whether he will be blessed or wretched (in religion). Then the soul is breathed into him...[35]".

In addition, another *hadith* states*: "I have heard Allah's Messenger as saying: When, forty actual nights pass after the semen gets into the womb, Allah sends the angel and gives him the shape. Then he creates his sense of hearing, sense of sight, his skin, his flesh, his bones, and then says: My Lord, would he be male or female? And your Lord decides as he desires and the angel then puts down that also and then says: My Lord, what about his age? And your Lord, decides as He likes it and the angel puts it down. Then he says: My Lord, what about his livelihood? And then the Lord decides as He likes and the angel writes it down, and then the angel gets out with his scroll of destiny in his hand and nothing is added to it and nothing is subtracted from it".*[36]

The issue of abortion is linked to the time when the product of fertilization is considered to possess life that is when it becomes a living entity. Islam is opposed to abortion as a rule. The exception is that under some extraordinary circumstances, say, for example, if there is a serious risk to the health or life of the mother, or if the fetus has some incapacitating congenital abnormalities that are incompatible with life, TOP will be permissible. The decision to perform such abortions, however, is to be made by the hospital ethical committee, and not by the individual[37].

The discussion shows the complexity of the nature of life and its different dimensions. From one aspect, life is there from the beginning; at another level the spirit or *Ruh* is specifically blown into the fetus later on, which must necessarily distinguish it from the earlier stages. Thus the question is whether the fetus is truly a living entity only when the *Ruh* is blown into it, or before? As a general principle, however, it suffices to say that the sanctity of human life covers all its stages, including the intrauterine life of the embryo and fetus which also should not be compromised by the doctor, save for the absolute medical necessity recognized by Islamic Jurisprudence[38].

Conclusions

Once the fetus is attached to the wall of the uterus, and begins to grow as Allah has intended, it could develop into a healthy normal being and may be born as such. On the other hand, it could also separate from the womb much earlier, as in the case of spontaneous abortion. In the first case it would be a full human being, with all rights accorded and all its bodily parts respected; while in the second case, it is dead. A third case is that of a healthy fetus removed from the womb by the doctor during, abortion. All scientists who respect human life have agreed that doctors should not have the right to separate the fetus from the womb; thereby killing it for an unlawful purpose. There are, however, cases when the pregnancy is

accompanied by certain complications that put the mother's life at risk, and when the baby's life is sacrificed to save that of the mother. Such cases are governed by the law of necessity that should be respected.

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ASSISTED REPRODUCTIVE TECHNOLOGIES AND THE ISLAMIC PERSPECTIVE

*Soumia Brakta**

Abstract

Most adults have life plans that include bearing children to complete family building; however, many struggle to achieve pregnancy. When couples who desire children are diagnosed with infertility, the negative effects on their psychological well-being can be debilitating. The rates of infertility continue to increase as more individuals and couples seek treatment from health care professionals. Moreover, advances in assisted reproduction technologies (ART) has transformed the treatment of infertility and has allowed for the management of nearly all causes of infertility. Islam recognizes infertility as a medical condition and encourages couples to seek treatment. In this chapter, the current advances in infertility treatment and their application within Islamic law with a focus on ART are reviewed.

Keywords: Artificial insemination (AI), assisted reproductive technologies (ART), in vitro fertilization (IVF), preimplantation genetic diagnosis (PGD), donor gametes, third party reproduction, gestational carrier, fertility preservation, posthumous assisted reproduction (PAR)

Introduction

Assisted reproductive technologies (ART) involves all techniques that include manipulation of oocytes outside of the body[1]**.** In assisted reproduction, the reproductive biologist directly handles the oocyte and sperm to improve the probability of achieving a pregnancy[2]**.** The first and still most common form of ART is in vitro fertilization and embryo transfer (IVF-ET)[1,2].The rapid advancement and success of modern ART has completely revolutionized the treatment of infertility and has given rise to multiple ethical and religious concerns. Islamic law recognizes infertility as a medical condition and encourages its treatment[3] to achieve pregnancy but within allowed Islamic principles[4].

Diagnostic evaluation for infertility is indicated when couples fail to achieve clinical pregnancy after 12 months or more of regular unprotected intercourse[5]. Infertility affects about 72.4 million couples worldwide[6] and approximately 12% of women in the United States[7]. The first child resulting from IVF was born in 1978[2] and the first successful IVF cycle in the United States occurred in 1981[7]. In the 40 years since, IVF has resulted in millions of births and now accounts for 1.6% of all births in the United States[8].

Reproductive medicine is a field of constant growth and evolution with significant advancement from artificial insemination (AI) and in vitro fertilization (IVF) to current technologies involving intra-cytoplasmic sperm injection (ICSI), cryopreservation of either gametes (oocytes and sperm) or embryos, and biopsy of embryos for preimplantation genetic diagnosis (PGD).

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ART will continue to present social and ethical challenges for Muslim patients as demand for ART increases because of the global trend of delay in childbearing, steady increase in success rates of IVF and rise of disposable income[9]. Today ART is available throughout most of the world, including most of Muslim majority countries, as advancement in laboratory technology and clinical practice have allowed IVF to evolve into a procedure that is safe, efficient, and more accessible at a reasonable cost.

In vitro fertilization and its indications

IVF involves multiple steps beginning with ovarian hyperstimulation using gonadotropin injections, followed by retrieval of oocytes from the ovaries, fertilization in the laboratory and transfer of the embryos into the uterus[1]. IVF was first developed to treat infertility caused by occlusion of the fallopian tubes, but now it is used to treat almost all causes of infertility[1]. Currently, in clinical practice, the standard indications for IVF are tubal factor infertility, endometriosis, male factor infertility, and unexplained infertility[2]. It can also be used to treat multifactor infertility and age-related infertility.

In women with infertility secondary to premature ovarian failure and advanced aging with diminished ovarian reserve, treatment with IVF using oocytes from young donors is highly successful[1]. Women with normal ovaries and absent or nonfunctional uterus and those with medical conditions for which pregnancy is contraindicated, IVF with embryo transfer to a gestational carrier offers the possibility of genetic offspring[1]. In this case, the biological parents are the legal parents and the gestational carrier is a woman who agreed to have the couple's fertilized egg (embryo) implanted in her uterus. "Gestational carrier" refers to circumstances in which an individual provides only gestation and does not provide her gamete for pregnancy[10]. In contrasts, "traditional surrogacy" refers to circumstances in which the gestational carrier provides the oocyte and gestates the pregnancy[10].

In couples with known genetic disorders, IVF with PGD can avoid the risk of having offsprings with inherited genetic disorders[1]. PGD is thus designed to decrease the chance of transferring genetically abnormal embryos into the uterus[11]. The process involves IVF to produce embryos, biopsy of the embryos and genetic diagnosis, followed by transfer of the unaffected embryos. PGD-M refers to testing for monogenic or single gene disorders to prevent transmission of disorders such cystic fibrosis, sickle cells disease, hemophilia, and Huntington's disease to offspring. PGD-A refers to screening embryos for aneuploidies such as Down syndrome to improve IVF success and to decrease spontaneous abortion[11]. Finally, PGD-SR refers to screening for chromosomal "structural rearrangements" such as translocations or inversions to reduce the risk of recurrent pregnancy loss.

Artificial insemination is used to treat male infertility and may be performed by injecting sperm into the cervical os or directly into the uterus; however, intrauterine insemination (IUI) is now almost universally performed for many reasons but mainly because of significantly higher success rates[1]. In men with mild semen abnormalities, IUI is adequate treatment. When IUI is not possible or fails and insemination with donor sperm is not an acceptable option as is the case for many Muslim individuals, IVF with ICSI, using the patient's sperm isolated from the ejaculate or extracted from the epididymis or testis offers realistic option for successful treatment[1,2]. IVF with ICSI provides the means to treat even the most severe male factor infertility. It involves the injection of a single spermatozoa into a mature oocyte to achieve fertilization. In contrast,

conventional IVF involves standard insemination with 50-100 thousand motile sperm and is less effective when semen parameters are significantly abnormal.

Fertility preservation

The indication for fertility preservation includes malignant diseases, benign conditions such autoimmune and hematologic disorders requiring chemotherapy and/or radiotherapy, age-related fertility decline, and gender affirming hormonal and/or surgical therapy. The demand for fertility preservation has increased significantly in recent years and in fact, the largest group of women seeking fertility preservation consist of women who plan to delay childbearing[12]. Embryo cryopreservation or freezing has become a routine procedure in assisted reproduction and transfer of thawed embryos is as efficient as transfer of fresh embryo. However, oocyte cryopreservation offers more advantages providing reproductive autonomy when a male partner is not available. Until few years ago, oocyte cryopreservation was considered impractical because of unacceptable survival rates of ova after their thawing[13]. Recently, survival rates as high as 90% have been reported. Currently cryopreservation of both embryos and mature oocytes are the only methods of fertility preservation endorsed by the American Society of Reproductive Medicine (ASRM)[12]. For pre-pubertal females who are unable to delay chemotherapy, ovarian-tissue cryopreservation is the only option but the technique is still considered experimental[12]. Sperm cryopreservation has been practiced for many decades and is the most reliable form of fertility preservation in males. Germ cell storage and derivation of male gametes from stem cells are experimental techniques of fertility preservation in pre-pubertal males[14].

Posthumous assisted reproduction

Posthumous assisted reproduction (PAR) is the use of one's own gametes to produce a child in the event of a premature death. Posthumous reproduction first became possible when sperm was successfully cryopreserved and used for artificial insemination after the death of the donor. According to the ASRM guidelines, "posthumous gamete (sperm or oocyte) retrieval or use for reproductive purposes is ethically justifiable if written documentation from the deceased authorizing the procedure is available"[15]. It's also justifiable to use embryos when prior consent is documented[15]. In the case of absent written documentation from the deceased, programs should only consider PAR requests made by surviving spouses or partners. In the US, states' laws vary on permissibility of posthumous retrieval or use of gametes or embryos and whether children conceived posthumously are legally recognized as offspring of the deceased, thus clinics considering request for PAR should be aware of applicable state laws[15].

Islamic law and assisted reproduction

In its original form, assisted reproduction was supported and embraced by the Islamic world, because treatment of the infertile couple is highly encouraged. Muslims believe that having spouses and offspring is a great blessing. The Qur'an (16:72) states:

(وَاللَّهُ جَعَلَ لَكُم مِّنْ أَنفُسِكُمْ أَزْوَاجًا وَجَعَلَ لَكُم مِّنْ أَزْوَاجِكُم بَنِينَ وَحَفَدَةً وَرَزَقَكُم مِّنَ الطَّيِّبَاتِ أَفَبِالْبَاطِلِ يُؤْمِنُونَ وَبِنِعْمَتِ اللَّهِ هُمْ يَكْفُرُونَ)

"And Allah has given you spouses from your kind, and has granted you through your spouses, sons and grandsons, and has provided you wholesome things as sustenance"

However, assisted conception has been restricted when involving third-party persons

because of the importance of lineage preservation in Islamic law. In fact, one of the five objectives of Islamic jurisprudence is the protection of progeny[4]. Third-party assisted reproduction refers to the use of donor oocytes, sperm or embryos from a third person and/or use of gestational carriers. In contrast, first-party assisted reproduction refers to assisted conception in which the intended parents use their own gametes[16]. In addition, Muslim authorities consider the transmission of reproductive tissue between unmarried individuals a violation of Islamic law.

Islamic jurisprudence does not allow for sexual relations or reproduction outside of marriage. This law is designed to preserve lineage and mandate biological inheritance[17]. Laws of marriage and inheritance are based on well-defined and documented lineage.

The most influential legal opinion (*Fatwa*) concerning assisted reproduction was issued in 1980, two years after the birth of the first IVF baby[18]**.** This original al-Azhar *fatwa* has been reissued and reaffirmed in many parts of the Sunni Muslim world[17]. The al-Azhar Fatwa allowed for all forms of IVF where infertile couples were legally married and willing to use their own gametes for treatment. The Sunni *fatwas* on ART have since allowed for the following: AI with a husband's sperm; IVF using the husband's sperm to fertilize the wife's oocyte; IVF with ICSI in which the sperm of the husband is injected into the wife's oocyte and then implanted in the wife's uterus; cryopreservation or freezing of embryos and gametes to be used only by the couple while married for further attempts at IVF or if they decide to have another pregnancy; postmenopausal pregnancy using the wife's cryopreserved embryos or oocytes fertilized by the husband's sperm; IVF with PGD to prevent offspring with inherited genetic disorders; use of embryos for research; and uterine transplantation[17]. The Sunni *fatwas* issued the following ART restrictions: third party donors including gestational carriers are not allowed; sperm of a divorced or dead husband is not allowed in ART, sperm banks for the purpose of donations are not allowed, they may only be used for fertility preservation by the same person; PGD or sperm sorting techniques for the purpose of sex selection are not allowed by most scholars.

Shia Islam and assisted reproduction

Between 85 to 90 percent of the world's Muslims are Sunni and about 10-15 percent are Shia. The Shia Muslims initially followed the al-Azhar *fatwa* on assisted reproduction until many scholars began supporting the involvement of third-party assisted reproduction in the 1990s[17,18]. In 1999, Ayatollah Ali Hussein Khamenei issued a *fatwa* allowing the use of donor gametes and gestational carriers in assisted reproduction with specific conditions[17]. He also allowed gamete donation even after the death of the donor[19]. According to the *fatwa*, gamete donors are the legal parents, and the recipients are considered adoptive parents; thus, children can inherit from the legal parents/donors. For example, a child born of sperm donation can only inherit from his biological father (the sperm donor), thus the *fatwa* imposes parental obligation on the recipient couple while denying their parental rights by not recognizing any inheritance relationship. The Ayatollah justified his legal opinions/rulings as "marriage saviors"[19]. Despite approving the Act of Embryo Donation to Infertile Spouses (the Act) in 2003, confusion and lack of clarity persists, and Iranians continue to raise concerns regarding lack of legislation to ensure safety of donated embryos and to protect future children. There is serious concern about lack of legislation to restrict embryo donations by each couple. In addition, there are no clear

confidentiality law to protect the identity of gamete/embryo donors in Iran[20]. Shia scholars continue to debate third-party assisted reproduction and divergent gamete donation practices have emerged with the majority of Muslims (both Shia and Sunni) rejecting third-party gamete donation[18].

Adoption

The majority of infertile couples will achieve pregnancy after appropriate evaluation and treatment[1]. For those who fail treatment, adoption may be a viable option; however, deciding when to discontinue treatment to explore the option of adoption can be a very difficult decision. In fact, adoption may help couples cope with the symbolic loss created by failed infertility treatments[2]. Adoption is encouraged in Islamic jurisprudence with the condition that the child retain his/her name to preserve paternal lineage[4,21].

The Qur'an (33:5) states:

ادْعُوهُمْ لِآبَائِهِمْ هُوَ أَقْسَطُ عِندَ اللَّهِ فَإِن لَّمْ تَعْلَمُوا آبَاءَهُمْ فَإِخْوَانُكُمْ فِي الدِّينِ وَمَوَالِيكُمْ وَلَيْسَ عَلَيْكُمْ جُنَاحٌ فِيمَا أَخْطَأْتُم بِهِ وَلَكِن مَّا تَعَمَّدَتْ قُلُوبُكُمْ وَكَانَ اللَّهُ غَفُورًا رَّحِيمًا

"Call them (adopted sons) by (the names of) their fathers, that is more just with Allah"

Conclusions

It is important to note that Muslims will vary in the degree of adherence to Islamic law and physicians should discuss and offer all treatment options without making assumptions about their patients' religious beliefs. When providing assisted reproduction services to patients, it is the duty of the physician to offer standard of care evaluation and treatment regardless of his/her own religious/ethical beliefs and according to the patient's ethical values. A Muslim physician, if knowledgeable, may discuss Islamic rulings regarding ART with the Muslim patient / couple, if asked. Otherwise the physician should refer them to religious scholars. If the physician has a conscientious objection to the desired treatments, he/she is ethically obligated to refer the couple to providers who are able to offer access to the desired medical services[22].

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AN ISLAMIC PERSPECTIVE OF ASSISTED REPRODUCTIVE TECHNOLOGIES

*Musa Mohd. Nordin**

Abstract

Dr. Edwards, an embryologist and Dr. Steptoe, a gynaecologist in the United Kingdom first pioneered the fertility technique called In Vitro Fertilisation Pre-Embryo Transfer (IVF – ET). In July 1978, they announced to the world the birth of the first test-tube baby, Louise Brown which was a landmark achievement in the science of reproductive medicine[1].

Since then, a myriad of assisted reproductive techniques have surfaced, further refining and superseding earlier technologies. Assisted reproductive technologies (ART) refers to all the techniques involved in the management of infertility that require the handling and manipulation of gametes and embryos and treatment modalities to induce ovulation or spermatogenesis. Techniques of in-vivo assisted reproduction facilitate the fertilization of the gametes within the reproductive tract of the wife. This may be achieved through the procedures of intrauterine insemination (IUI), intratubal insemination (ITI) and gamete intra fallopian transfer (GIFT)[2]. Mating of the gametes ocuur extracorporeally during in-vitro assisted conception. The modalities to facilitate the fertilization in-vitro followed by transfer into the reproductive tract include in vitro fertilisation and embryo transfer (IVF-ET), pronuclear stage tubal transfer (PROST), zygote intrafallopian transfer (ZIFT) and tubal embryo stage transfer (TEST)[3,4,5]. More radical forms of micro-manipulation techniques have been recently developed to assist fertilization of men with severe infertility. These include intracytoplasmic sperm injection (ICSI) and micro injection of round spermatid nuclei into oocytes (ROSNI)[6,7].

Since the introduction of IVF-ET technology, well over a million babies have been born. The probability of a successful pregnancy is dependant on a variety of factors including the age and the reproductive health of the wife and the husband.

Eventhough reported success rates from ART programs can be very confusing and misleading, the probability of a successful outcome has improved from virtually zero to 30-50% at ART centers worldwide.

These new technologies in assisted reproduction has provoked considerable discussions and debates across all segments of human society. These revolutionary procedures in ART has probed the outermost boundaries of what is scientifically possible and acceptable. Micro manipulation at the very earliest stages of human development is a very delicate and sensitive issue with potentially explosive ethical, social, medico-legal and religious ramifications. Hence the turbulent and not uncommonly hostile controversies that has since evolved.

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The Islamic Organisation for Medical Sciences (IOMS), first addressed this issue on human reproduction in May 1983. Human reproductive cloning, an offshoot of ART, which is currently attracting a lot of public and media attention was similarly addressed at this 1983 seminar. Since the IOMS seminar, there has been a multitude of medico-Islamic jurisprudence seminars to discuss various contemporary issues related to ART.

This essay attempts to examine the various bioethical facets of ART and present an Islamic perspective of the infertility problem and the bio-religio-ethics of ART.

Infertility in The Glorious Qur'an

There are a few case scenarios depicted in the Al-Quran which helps us to gain a proper insight into the problem of infertility.

The first illustrates the story of Ibrahim (SAW) and his wife Sara as revealed in The Glorious Qur'an:

(فَأَوْجَسَ مِنْهُمْ خِيفَةً قَالُوا لا تَخَفْ وَبَشَّرُوهُ بِغُلامٍ عَلِيمٍ، فَأَقْبَلَتِ امْرَأَتُهُ فِي صَرَّةٍ فَصَكَّتْ وَجْهَهَا وَقَالَتْ عَجُوزٌ عَقِيمٌ، قَالُوا كَذَلِكَ قَالَ رَبُّكِ إِنَّهُ هُوَ الْحَكِيمُ الْعَلِيمُ)

"…And they (angels) gave him (Ibrahim) glad tidings of a son endowed with knowledge. But his wife came forward clamouring, she smote her forehead and said; "A barren old woman!" They said, "Even so has thy Lord spoken and He is full of wisdom and knowledge"[8].

The aged Sara had willingly resigned to her destiny of being infertile but yet continued to be firm in her faith and true to her husband. She remained a complete, faithful woman in every other way. And she offered Hajar to Ibrahim (SAW) in marriage, so as to enable him to have children. She was ultimately blessed with a child, Ishaq (SAW).

As with the example of Ibrahim (SAW), Zakaria (SAW) remained faithful and supportive of his infertile wife. Allah (SWT) says:

(وَزَكَرِيَّا إِذْ نَادَى رَبَّهُ رَبِّ لا تَذَرْنِي فَرْدًا وَأَنتَ خَيْرُ الْوَارِثِينَ، فَاسْتَجَبْنَا لَهُ وَوَهَبْنَا لَهُ يَحْيَى وَأَصْلَحْنَا لَهُ زَوْجَهُ إِنَّهُمْ كَانُوا يُسَارِعُونَ فِي الْخَيْرَاتِ وَيَدْعُونَنَا رَغَبًا وَرَهَبًا وَكَانُوا لَنَا خَاشِعِينَ)

"And (remember) Zakaria, when he cried to his Lord : "O my Lord! Leave me not without offspring, though Thou are the best of inheritors." So we listened to him and granted him Yahya. We cured his wife (barrenness) for him. These three were ever quick in emulation in good works; they used to call on Us with love and reverence, and humble themselves before us"[9].

Being infertile does not make one any lesser a man or woman. Like Zakaria (SAW), one should beseech Allah for the blessings of offsprings. We pray and hope our children to perpetuate our family lineage and to continue to disseminate the teachings of God's chosen prophets. The example of the earlier prophets and their wives teaches one to pray to God and endeavour to rectify the infertility disorder but if one is unsuccessful then one accepts the predestination ordained as Allah has clearly decreed:

(لِلَّهِ مُلْكُ السَّمَاوَاتِ وَالأَرْضِ يَخْلُقُ مَا يَشَاء يَهَبُ لِمَنْ يَشَاء إِنَاثًا وَيَهَبُ لِمَن يَشَاء الذُّكُورَ، أَوْ يُزَوِّجُهُمْ ذُكْرَانًا وَإِنَاثًا وَيَجْعَلُ مَن يَشَاء عَقِيمًا إِنَّهُ عَلِيمٌ قَدِيرٌ)

"To Allah belongs the dominion of the heavens and the earth. He creates what He wills. He bestows (children) male or female according to His will. Or He

bestows both males and females, and He leaves barren whom He wills; for he is full of knowledge and power"[10].

If the earlier two examples ended with the successful outcome of an offsrping, the final scenario narrates the story of Asiya who never consummated her marriage to Pharaoh. She remained childless till her martyrdom but she nurtured a prophet, Musa (SAW), right from his infancy. Asiya, though childless, remained full of faith and potrayed a shining example of faith and fortitude to all believing woman when struck with a similar predicament. Allah says:

(وَضَرَبَ اللَّهُ مَثَلا لِّلَّذِينَ آمَنُوا امْرَأَةَ فِرْعَوْنَ إِذْ قَالَتْ رَبِّ ابْنِ لِي عِندَكَ بَيْتًا فِي الْجَنَّةِ وَنَجِّنِي مِن فِرْعَوْنَ وَعَمَلِهِ وَنَجِّنِي مِنَ الْقَوْمِ الظَّالِمِينَ)

"And Allah sets forth, as an example to those who believe the wife of Pharaoh : Behold she said : O my Lord! Build for me, in nearness to Thee, a mansion in the Garden, and save me from Pharaoh and his doings, and save me from those that do wrong"[11].

Infertility in The Hadith

Suffice it to quote two very instructive sayings of the Propeht (SAW) which would have a very significant impact on our handling of the infertility issue.

"Marry women who will love you and give birth to many children for I shall take pride in the great numbers of my ummah" (Sunan al Nasai)

In his deliverance of the message of Islam, the Prophet SAW produced a generation of Muslims who were torch bearers of the true teachings of Al-Quran, who has since been decorated with the accolade of the unique Quranic generation. And in this hadith he emphasized the importance of the large numbers of his ummah. Besides quality of the believers, quantity is similarly an important denominator.

A pivotal principle taught by the prophet vis a vis medicine and reproductive medicine is no exception is contained in the following hadith reported by Sahih Muslim;

"For every disease there is a cure"

Infertility has been recognized by the World Health Organisation as a disease with significant mental and psychological morbidity. And quite clearly , the Muslims have been exhorted to explore the various curative strategies to overcome this disease which afflict up to 15% of couples.

Epidemiology of Infertility in the Muslim World

The reported population of Muslims in 1992 was 1.25 billion[12]. This statistic is expected to double in 2020. Up to 80 million of the world population are affected by some form of infertility problem. And Muslims contribute up to 40-50% of the infertile couples. The rate of infertility is relatively higher in the Muslim world when compared to the developed west.

A WHO report have shown that the rate of tubal occlusion in Muslim sub Saharan Africa was well over three times that of other regions with the exception of the Eastern Mediterranean[13]. The patterns of male infertility is however less apparent but regional variation in varicocoele and other related conditions have been reported.

Bio-Religio-Ethics of Assisted Reproductive Technologies in the Muslim World

The teachings of the Quran and Hadiths have emphasized the vital role of the institution of marriage and the family structure. And inseparable from this is the act of procreation. To this effect Allah SWT says:

(وَاللَّهُ جَعَلَ لَكُم مِّنْ أَنفُسِكُمْ أَزْوَاجًا وَجَعَلَ لَكُم مِّنْ أَزْوَاجِكُم بَنِينَ وَحَفَدَةً وَرَزَقَكُم مِّنَ الطَّيِّبَاتِ أَفَبِالْبَاطِلِ يُؤْمِنُونَ وَبِنِعْمَتِ اللَّهِ هُمْ يَكْفُرُونَ)

"And Allah has given you wives of your own kind, and has given you, from your wives, sons and grandsons, and has made provisions of good things for you. Is it then in vanity that they believe and in the grace of Allah that they disbelieve?"[14].

It therefore follows that the prevention and treatment of infertility is encouraged and becomes a medical priority because it will ensure an uninterrupted process of procreation[15]. Islam enjoins the affected man and woman to seek medical treatment including contemporary ART, to fulfill their cherished hope of parenthood.

Since marriage and purity of lineage is fundamental in the teachings of Islam, it is very important that this unadulterated inheritance of genes and heredity is preserved. Any method of ART practised must therefore guard against any mixing of the genes. Every newborn child must relate unequivocally to a biological and legal father and mother. Hence the premise to the practice of any modality of ART is to abide by the Shariah system of legally binding marriage through the union of the sperm and the ovum.

Assisted Reproductive Tecnologies – The Islamic Paradigm

The Islamic Organisation for Medical Sciences (IOMS) first addressed this issue of assisted reproduction in their Fiqh Medical Seminar in May 1983. The IOMS seminar are always well attended by distinguished jurists, shariah experts, medical practitioners, scientists and specialists in other human sciences. Based on the conclusions of the Fiqh Medical Seminar of the IOMS and the opinions of other medical-shariah authorities in this area of ART, I have summarized the fundamental ground rules which must be adhered to diligently by any Muslim practitioner of ART.

1. The sanctity of the marital contract must not be violated at any point in time during the ART process. The Muslim practitioner of ART must guard jealously the purity and legality of the sperm and ovum of the couple. Since the union of the sperm and ovum is occurring one step beyond the act of sexual coitus, the fusion must take place within the jurisdiction of a marriage contract[16].
2. The dyad of the legal husband and wife must not be intruded by any third party. The involvement of a third person in the equation is totally unacceptable whether this take the form of a sperm, an ovum, an embryo or a uterus. Hence the widespread practice in ART facilities of sperm, ovum and embryo donation and the "rental" of uterus is incompatible with the Islamic injunctions related to human reproduction[16].
3. Once the marital contract has been terminated either due to divorce or death of the husband, assisted reproduction cannot be performed on

the ex-wife or widow using sperm cells from the former or dead husband or using the previously cryopreserved embryos of the couple. The stored semen and cryopreserved embryo of her ex or dead husband now becomes alien to her and the latter to either party[17].

4. In ART programs, the excess pre-embryos produced can be frozen and stored in liquid nitrogen, a technique called cryopreservation. This can only be undertaken after the free informed consent of the couple is obtained. The excess pre-embryos continues to remain the property of the couple. It can only be transferred to the uterus of the wife and only during the validity of the marriage contract[18].
5. Cryopreservation should only be allowed in specially designated sperm and pre-embryo banks or ART centres accredited by the relevant health authorities. An accurate and full proof system of documentation must be in place to guard against mixing of lineages and commercialism. Confidentiality of information should not be breached and tight security procedures should prevent unauthorized access to records[19].
6. Credentialling of all staff participating in the ART program is of utmost importance to ensure the highest standards of professionalism, trustworthiness, integrity and responsibility. Strict adherence to evidence based reproductive medicine, clinical practice guidelines and a code of ethical ART practice by all related professionals would help to protect the infertile couple who are often very desperate, emotional and hence very vulnerable to the unethical and profit driven ART practitioner. Hence the latter three qualities of trustworthiness, integrity and responsibility often supersede the string of professional qualifications[20].
7. Many countries have now restricted the numbers of eggs or embryos which could be placed in a woman in any one cycle. The recommended clinical guideline in Malaysia is that no more than 3 eggs or embryos can be implanted into a woman in any one cycle. However, up to a maximum of 4 eggs or embryos maybe transferred if two conditions are met; firstly, the patient has undergone no less than 2 ART attempts which were unsuccessful and secondly, the patient is between 35-45 years of age. If the procedures of stimulating and monitoring egg production are closely monitored and the numbers of embryos implanted are restricted, then the likelihood of generating excessive multifoetal gestation would be minimized. However, if despite this, in excess of three foetuses are gestated, pregnancy reduction is permissible if the prospect of foetal viability is compromised or if the health or life of the mother is threatened. Multiple pregnancy of an order higher than twins presents an increased health hazard to the gravid mother and also for her fetuses which are more likely to be spontaneously aborted or to be delivered extremely prematurely with all the attendant complications of prematurity[21].
8. The abuse of infertility procedures maybe prevented and other related activities of ART maybe better monitored through acts of legislation. The Human Fertilisation and Embryology Act 1990 in the United Kingdom and Eire was an act of parliament which among others made provisions in connection with human

embryos and any subsequent development of such embryos and to prohibit certain practices in connection with embryos and gametes[22]. The Ministry of Health is now at the stage of drafting laws to address the activities of ART in Malaysia.

9. There are various permutations of surrogate motherhood. In the first form, the surrogate is impregnated with the commissioning husband's semen; carry the pregnancy to term and give away the baby to the commissioning couple. The commissioning couple may via IVF transfer their resultant embryo to the surrogate mother. They therefore remain the biological parents. Or the surrogate may be impregnated with donated semen or embryo and reared by the commissioning parents. In this last case scenario, there will arise 3 set of parents; the rearing parents, biological parents and surrogate mother. A case was brought up in the legal courts recently about the parentage of a surrogate child. Five individuals laid claim to the child. And the court ruled that none had legal parental claims to the child! Surrogacy in all its forms is not allowed in Islam[23].

Pre-Implantation Genetic Diagnosis (PGD)

Two hadiths related from the Prophet SAW has helped us to have a better insight into the science of genetics.

"Select your spouses carefully in the interest of your offspring because lineage is a crucial issue"

"Do not marry your close relatives because you will beget weak offsrpings"

The second Caliph of Islam, Omar ibn El-Khattab, upon noting that a particular tribe intermarried with increased frequency, remarked to them :

"You have weakened your descendants. You should marry strangers (people outside your tribe)".

The spirit of the exhortations of the Prophet SAW and his companion was to secure normal and healthy babies, protection of their early well being, endowed with the benefits of good genes from both parents and the prevention of congenital malformations and its consequent disabilities.

A variety of inherited diseases may now be diagnosed in the pre-embryo stage prior to implantation into the uterus. Highly sensitive polymerase chain reaction (PCR) techniques have enabled the rapid amplification of minute amounts of DNA material from the embryonic cells. Fluorescent in situ hybridization (FISH) technology with combination chromosomal probes have made possible the genetic analysis of embryonal sex and various aneuploidies[24].

Some of the potentially debilitating diseases which may be screened include Trisomy 13, 17 and 21, cystic fibrosis, haemophilia, Marfan's syndrome, incontinentia pigmentosa, x-linked immune deficiency, retinitis pigmentosa, fragile X syndrome, muscular dystrophy and Lesch-Nyhan disease. It is postulated that well over 200 diseases or conditions can be further isolated with ongoing PGD research[25].

The First International Conference on Bioethics in the Muslim World held in Cairo from 10-13 Dec 1991 examined very carefully this area of pre-embryo research[26]. Collaborating this with the decisions of other scientific cum Islamic jurisprudence seminars, the following practice guidelines may be summarized :

1. Cryopreserved pre-embryos may be used for research purposes with the free and informed consent of the couple.
2. Research conducted on pre-embryos is limited only to therapeutic research. Genetic analysis of pre-embryos to detect specific genetic disorders is permissible. Hence diagnostic aids should be provided for couples at high risk for selected inherited diseases. The treated embryo may only be implanted into the uterus of the wife who is the owner of the ova and only during the span of the marriage contract.
3. Any pre-embryos found to be genetically defective maybe rejected from transfer into the uterus after proper counselling by the physician.
4. Research aimed at changing the inherited characteristics of pre-embryos (e.g. hair and eye colour, intelligence, height) including sex selection is forbidden.
5. Sex selection is however permitted if a particular sex predisposes to a serious genetic condition. One of the first couple to use this technique of sex selection was hoping to escape a deadly disease known as x-linked hydrocephalus, which almost always affected boys. Embryonal sex selection would make possible the weeding out of other serious x-linked disorders including haemophilia, Duchenne muscular dystrophy and fragile X syndrome.
6. The free informed consent of the couple should be obtained prior to conducting any non-therapeutic research on the pre-embryos. These pre-embryos should not be implanted into the uterus of the wife or that of any other woman.
7. Research of a commercial nature or not related to the health of the mother or child is not allowed.
8. The research should be undertaken in accredited and reputable research facilities. The medical justification for the research proposal must be sound and scientific and conducted by a skilled and responsible researcher.

Conclusions

Contemporary technology in the realm of assisted reproduction has been a major breakthrough in the management of infertility. Undoubtedly, it has brought great joy and happiness to many previously infertile couples.

Along with it, ART has created her own set of bio-religio-ethical problems and dilemmas. The response to this new technique in human reproduction has ranged from categorical condemnation by the Roman Catholic Church to the multiple reproductive permutations of the libertarian philosophy.

It is interesting to note that in this very difficult, painful and emotional issue Islam has presented a middle of the road solution, moderating between the two extreme views. Allah says:

(وَكَذَلِكَ جَعَلْنَاكُمْ أُمَّةً وَسَطًا لِّتَكُونُواْ شُهَدَاء عَلَى النَّاسِ وَيَكُونَ الرَّسُولُ عَلَيْكُمْ شَهِيدًا...)

"Thus we have appointed you a middle nation, that you may be witness against mankind, and that the messenger may be witness against you …"[27].

ART is Islamically acceptable and commendable provided it is practised within the husband and wife dyad during the span of the marital contract.

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OVERCOMING MALE INFERTILITY THROUGH ASSISTED REPRODUCTIVE TECHNOLOGY: AN ETHICAL PERSPECTIVE

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Abstract

This paper aims to address ethical issues related to the assisted reproductive technology of artificial insemination [AI] especially to overcome male infertility from both Islamic and the western ethical perspectives. At one extreme some western bioethicists allows artificial insemination with donated sperm from anonymous donor if the legal husband have azoospermia which opens the door of potential social dilemma including fracturing the family unit. The other extreme view offer arguments against the irrational application of this modern assisted reproductive technology. Islamic bioethics offers a balanced solution to this issue.

Keywords: artificial insemination, assisted reproductive technology, western philosophy, ethics.

The desire to have one's own offspring is a very strong human instinct. They could proceed to conceive a child by natural means of sexual intercourse. But some couples fail to become parents because of various medical reasons. The problem of infertility is as old as recorded history. Irrespective of religion, place, community, culture and time, couples facing this problem have tried hard to overcome it.

Male infertility may be the consequence of the following pathology: (a) inability to produce any sperm at all (azoospermia); (b) the number of sperms produced is too low to successfully fertilise the ovum (oligospermia); (c) adequate numbers of sperms are produced but they are not sufficiently motile or are dysfunctional; (d) neurological conditions that impair ejaculation; and (e) impotency due to diseases such as diabetes mellitus.[1] In these circumstances, artificial insemination[AI] can help to overcome male infertility.

Artificial Insemination (AI) is a technique in which the sperm is placed in the female reproductive tract by mechanical methods that precludes sexual ejaculation into the woman's vagina[2].

Therefore, three points can be derived regarding AI based on the above definition: (a) AI is a technique in which the sperms are placed in the female reproductive tract by mechanical methods rather than through the act of sexual intercourse; (b) the man does not ejaculate into the woman's vagina; and (c) the sperm has to be placed into the female reproductive tract with an instrument.

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There are two types of AI depending on the source of the sperms employed in the procedure: Artificial Insemination Homologous (AIH) and Artificial Insemination Heterologous/Donor (AID). In AIH, the sperm is collected from the male partner. The name of the process is commonly abbreviated as AIH and the 'H' frequently refers to the 'husband'. However, the male partner does not necessarily denote the legal husband. That is, a legal marriage bond is not a strict requirement in this procedure. Rather, the male partner needs only to be the functional equivalent of a husband[1].

Before undertaking AIH, the semen has to be certified normal and that it does not and cannot enter the cervical canal in the usual way[3]. Those are just one set of criteria. Nowadays, AIH is carried out even in cases of poor quality semen.

AID uses sperms from a donor other than the 'husband'. It is employed when the problem is due to an irreversible sterility of the 'husband.'

In the western secular philosophical context, ethical judgments about the use of AID is twofold. It is both positive and negative in ethical measurements. It is argued that AID offers certain potential psychological benefits over the alternative of adoption. Because both husband and wife can be involved in the pregnancy from conception onward, sharing the experience of delivery and the early days of the baby's life. There is a chance that the child's physical appearance will at least match that of the mother. Furthermore, if there are several children they are more likely to resemble one another. Any subconscious fear of the sudden appearance of the natural mother is nil as there may be in adoption. And, of course, the desire on the part of the mother to carry a child is satisfied in contrast to adoption[4].

The mother may be guilty of committing adultery because of taking donor sperms whether or not this feeling is justified in the forum of conscience. In our ordinary lives, customary morality is often more powerful than rational morality. In fact, it is especially true in primitive personalities however sophisticated or cultured they are [5]. The wife may have felt 'cheated' by discovering the sterility of her mate. The desire to procreate despite this discovery may become, in part, an act of revenge towards the barren husband[6]. If AID is successful, the wife may have a complex feeling that the new life she bears within her has no relation to the love she has for her husband. [7]The situation would be to some extent complex if she secretly yearns to meet the man who 'helped' her when the husband could not[4].

The psychological threat of the husband is perhaps greater than the wife. Man's sense of ego is stronger than that of a female. When he discovers that he is unable to impregnate his wife, he suffers from an inferiority complex. It is a threat to his masculinity. Attempting AID may make the situation more difficult. He may have a sense of jealousy towards the donor because of his inability to procreate. "AID, thus, threatens to evoke very deep-seated feelings of helpless dependence in relationship to women and also feelings of inadequacy in relation to other men"[6]. The husband may psychologically withdraw from the home, engaging himself in his work or other forms of self-achievement by which he may hope to regain his sense of masculinity[6]. Sometimes, in order to overcome this type of problem, doctors often ask the husband to press the plunger of the syringe so that he will have a feeling that he himself made his wife pregnant. But it is doubtful whether this act would improve the complex situation.

The psychological development of the child may also be affected. They may crave for knowledge of, and connection to, the missing halves of their very selves. A person conceived with donated sperm expressed his emotions as such: "We have the fundamental

question that everyone has growing up. Where did I come from? Who am I? Do I have their eyes, their nose, their hair"[8]. "People don't realize how painful this is," says Cordray, now 48. "I feel a part of me is not complete. I want to know what (my biological father's) family is like. I want to know where I came from." [9] Consider the case of Bary Stevens who at the age of 18 following the death of his "adoptive" father came to know that he was born through AID which had been done at a private clinic in London, U.K. Now in his late 40s he sets out to uncover his missing genetic heritage[10].

An important ethical issue is associated with the disclosure or otherwise of the biological father of the child. Some would offer argument in favor of disclosing his/her true genealogy to the child. According to them, the risk of accidental disclosure may cause parents to decide that forthrightly telling the child at an appropriate age would contribute to a healthier relationship. There is no parallel to truthfulness in life. Disclosure is necessary because knowledge of one's genealogical heritage may be crucial if the child suffers any genetic illness or needs a reliable family medical history. If not disclosed, AID may lead to marriage between half-siblings. The semen from the same donor is often used with women who live in the same geographic community and who may represent a rather homogeneous ethnic or social group. AID children of the same donor may inadvertently enter into a marital relationship[4].

Family and societal relationships maybe seriously affected if the ideal of truth-telling is not practiced. G.D Mitchell highlighted this point by saying that secrecy over donations of semen or embryos attacks the whole practice of truth-telling on which society and our daily-commerce with one another depends. He adds, "why receiving donated sperms and oocytes are deleterious to society. Firstly, a donation is frequently shrouded in secrecy and of a kind that leads members of families to be deceitful. Secondly, it gives rise to births of children who are denied adequate, or at least normal, knowledge of their genetic origins"[11].

Mitchell's second worry is that it cannot be right to support processes which may well lead to the creation of children suffering some kind of deprivation which children born in the usual way may not expect to endure. According to Mitchell, "This is knowledge which helps a child acquire an identity; he knows where he belongs. Not to have this knowledge may be said to deprive him of a natural right. So should we, as a society, and the profession of medicine in particular, connive at producing children who begin life with a disadvantage" [11].

Every man wants to know his real origins, his roots. The argument for the disclosure of AID seems very strong here. But it is not absolutely true. As an infertility specialist Dr. Richard Casey opines that it is difficult finding donors even with assurances their identities will be safeguarded[9]. To quote him, "It would be virtually impossible if they knew that at a future date they may have some people knocking at their door, saying, 'You're my dad, and I wanted to see you'. The primary concern is the donor, who is making the whole thing work" [9].

Whether to reveal or not to reveal the secret of AID can be a serious concern for the husband. Consider the case of Mr. L, a handsome man in his late 30s. He is university educated and holds a good job. He is married to a highly educated woman. His quandary over whether to keep the secret or reveal it and if so, when and how, causes a serious emotional disturbance and makes his life very unsettle and haphazard. The preoccupation with the secret and the question regarding its concealment or disclosure constitutes concealed issues and unconscious conflicts seeking revelation: who am I and where did I come from?

Unsatisfactory answers to these cardinal questions during the pre-oedipal and oedipal stages of development can create a complex dilemma to overcome[12].

Ethical question also arises regarding the status of the child born through AID. As a third party is involved, there are concerns whether the child would be illegitimate or not. Some western bioethicist are of the opinion that AID is not adultery if marriage fidelity is conceived to be personal rather than based on a legal relationship. This is feasible in two ways. Firstly, artificial insemination mutually agreed upon by husband and wife does not involve any broken faith between them. Secondly, no personal relationship is entered with the donor at all. So the charge that AID is adultery is a legalism, not a personal or moral objection at all. Interpreted in this way, AID would acquire a new dimension of thought[5]. Fletcher emphasizes on the 'personal' character of the marriage bond rather than on any notion of a physical bond. He is unfettered by concepts of the rightness or wrongness of given physical acts apart from the significance love assigns to them. Moreover, he exalts the superiority of the spiritual over the physical in the scope for alternatives offered through the technology of AID. He, therefore, welcomes this choice when it is the result of mutual trust and agreement between husband and wife. Helmut Thielicke however argues that the introduction of donor semen violates the *mysterium* of marital fellowship and the psychophysical unity of husband and wife. This violation also manifests itself when the fulfillment of motherhood which is not accompanied by the fulfillment of fatherhood, breaks down the personal solidarity of the married couple[13].

Bioethicist Dr. Nigel Camer speaks about donor sperms in terms of human dignity and honor. He refers to the well-known book, *If I Were a Rich Man, Could I Buy a Pancreas?* and strictly argues against sperm donation. According to him, things are bought and sold, but persons should not be and human dignity prevents us from doing that kind of act. When we are involved in buying and selling body parts for the purpose of making babies, we are moving rapidly into the notion that children are chattel because we have designed them. Moreover, we have lost the context of sexual love and in this way, babies are made, not procreated[14]. In fact, from the standpoint of ethics, our concerns should be both correct ends and correct means. In AID, the means separates the meaning of 'personal' and 'human' from physical, bodily processes. The love-making and life-giving dimensions of sexual intercourse of a valid married couple ultimately give the birth of a child. But in AID where the sperm is taken from a donor, the resultant child would not be the outcome of the loving sexual act between a husband and a wife. This is also the concern of Islamic ethics. Islamic ethics is also against AID as it involves participation of a foreign element in procreation other than the husband.

The AID children will have to face the complexity of laws in inheritance and others. In some states in the USA, if the husband gives consent to AID, the child will be his legitimate child [15].

If he denies the child's legitimacy, he bears a heavy burden of proof that he did not consent. The sperm donor also has a chance to be the father of the child. But, he is likely to be protected by anonymity in the records of the sperm bank. So, he is deprived of being the biological father. But the law tends to favor private sources of support for children. And for this reason, the child may receive support from the inseminator. Otherwise, the AID's child will have no natural father and hence fewer potential sources of support than has the illegitimate offspring. It still remains a question: should the husband's consent to the AID make any difference to the possible liability of the sperm donor for support. Like

adoption, it is likely that the liability of the donor would be cut off by the husband's consent to AID. Again, a question arises: who is to then bear the burden of proving that consent or non-consent in a case in which the kid not having any support from the mother's husband, seeks support from the donor[15]. Islamic ethics does not have to handle this type of problem because it does not pave the way for it at the beginning by forbidding the practice itself.

Different technologies that have been developed during the last few decades open the way for the possibility of posthumous reproduction. There are different ways of semen preservation. Cryopreservation of semen is very common in the U.S.A and elsewhere. People store their sperm at a sperm bank if they are worried that their sperm may become damaged. They fear about being exposed to harmful chemicals at work or about getting a disease that would damage their sperm. But the majority use sperm banks to donate their sperms to be used for artificial insemination. The sperm bank will first find out about the medical and social background of the donor. If the person concerned passes this criterion, the sperm bank will pay him a fee for his sperm. The sperm bank then gets in touch with doctors and other people who use techniques like artificial insemination. A doctor then uses the sperm to help an infertile woman to conceive and charges a fee from her. [2]Posthumous reproduction can be achieved even in cases where a man did not store semen during his lifetime. Current medical technology makes it possible for physicians to retrieve sperm from a deceased male within twenty-four hours of his death. [16]The wife of the deceased person can use the sperm of the dead husband for procreation. Question arises regarding its ethical validity.

Question of ethics arises regarding the status of the deceased person. Metaphysically a person disappears from his body at death but the dead body still continues to command respect[17]. Some cultures believe that organs and physical structures of the once living are no longer important. Most people in western society however would agree for the dead body to be disturbed for postmortem examinations and for organ or tissue retrieval for transplantation. Though many have a natural revulsion to the idea of cutting, opening and inspecting the dead body, the potential utilities to the medical profession, the family or to society have made them to accept the examination as a necessity, and it should be carried out with the maximum possible respect for the departed person[18].

There has been some aesthetic, cultural and religious resistance to the practice of organ retrieval and transplantation as an enterprise. Some people though accept organ transplantation, have some specific reservations about the disrespectful treatment of dead bodies in some circumstances. For instance, Fraderhas criticized the practice of providing artificial support for a pregnant corpse to bring the gestating fetus to viability, maintaining that this represents a profound disrespect for the dead body[19].

The act of posthumous conception raises a large number of complex ethical and social issues. The well-being of the child is a very crucial issue in this context. The decision to help a woman to conceive by using the sperm of her deceased partner, whether voluntarily frozen for that purpose before death or retrieved posthumously, should consider the welfare of the potential infant[18]. Orrand Siegler have sketched out a restrictive outlook towards posthumous sperm retrieval which would limit insemination to those cases where the deceased man has provided explicit consent for such a procedure. As such this conservative view dominates current law and practice.

In contrast to Orr and Siegler, another view would permit insemination and conception in the cases in which posthumous conception

has been totally refused or where there is no reasonable evidence that the dead man desired it. Parker explains the phenomenology of procreative desires which supports the permissible view and which is compatible with requirements concerning the interests of the decedents, concepts of medical infertility and the well-being of the coming offspring[20]. But how would Parker tackle the issue if one leaves property to one's children but has frozen sperm or embryos that might produce children decades after one's death, what would be the rule of distribution of property?

In Israel which is different with the situation in the UK, the law allows a woman to use the sperm after his death only if he had given clear consent for its use before his death. It was the effect of this strict law that Diane Blood had to fight to use her dead husband's sperm to become pregnant[21].

Conclusions

Some western bioethicists do not agree with AIH even if it is practiced by a legal husband. This point of view would restrict the options of assisted reproductive technology to overcome male infertility On the other extreme, some western ethicists on the grounds of procreative liberty have rationalised for the legitimacy of AID. They however dispute on whether the identities of the sperm donors maybe disclosed or not.

Hoffman and Morriss condemned this practice highlighting the problem in distribution of wealth[22]. This may have the long-term effect of fracturing the very foundation of the family structure.

Islamic bioethics allows artificial insemination from the husband's sperm with the maxim of *Shari'ah 'Hifd al Nasl'* (protection of progeny), preserving social, legal, moral values and obligations of married bonds. It will not jeopardise family ties.

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SURROGACY: LEGAL AND ETHICAL IMPLICATIONS

Mohammad Iqbal khan and Naveed Mufti*

Abstract

Surrogacy involves a contract of a woman with intending parent(s) to carry a pregnancy to term, with the intention of handing the child over to the intending parent (s), after delivery. Surrogacy provides a gestational carrier for another person(s) on payment or otherwise could be of two forms: gestational or full surrogacy and straight or partial surrogacy. Though, this process is an agreement, it raises several ethical questions including exploitation, breach of autonomy, commodification of the human body, emotional and financial coercion, threat to life and health of surrogate mothers and unpredictability of surrogacy arrangements. Muslim scholars consider this process as against the primary purposes and principles of *sharia'h*. Islamic medical ethics consider surrogacy as an unethical act and unacceptable according to Islamic teachings.

Keywords: *Surrogacy, ethical concerns, commercialism, dignity of child, Islamic teachings, Sharia'h.*

Introduction

The word surrogacy originates from the Latin word '*surrogare,* meaning "to put in another's place" or to "*substitute*". In other words, "someone who act as a surrogate, takes the place of another person". "To surrogate" means an individual function as a substitute for another person in a social or family role. Surrogacy, is a state of being a surrogate and in medical terminology: "when a woman allows use of her uterus to carry another woman's fertilized egg, carryout pregnancy to due term, and give birth to a child and agrees all this for another person or persons who will ultimately become the parent(s) of the newborn"[1].

There are two major types of surrogacy:

i. *Traditional surrogacy* or straight surrogacy where the surrogate women are being artificially inseminated, either by the known father's sperm or donor's sperm, and

ii. G*estational surrogacy* or full surrogacy where an intended mother cannot carry a pregnancy to term. Thus, her egg and her husband's or male partner's sperm is fertilized in *vitro* to create an embryo that is implanted into the surrogate mother's womb. This type of surrogacy was first successfully achieved in 1986[2]. There are several ethical questions arising from practicing gestational surrogacy: the embryo is created using a known male's sperm and mother's egg, thus the child is genetically related to both parents. If an anonymous' sperm and donated eggs are used or vice versa the donated sperm and mother's eggs are used, then the child genetically belongs to a single known parent. In situations where surplus embryo (a donor embryo) is implanted in a surrogate, the resulting child is genetically unrelated to the intended parents[3].

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In all the various surrogate arrangements, the surrogate upon delivering the newborn, hands it over to the intended family. The surrogate mother will be free from all responsibilities of the child[4]. When the surrogate mother is compensated with monetary benefits it is known as *commercial surrogacy* and widely practiced in some countries. When the surrogate undertakes the process without any financial rewards or compensation then this is known as *altruistic surrogacy*. In most countries commercial surrogacy is declared as illegal while in other countries gestational surrogacy is prohibited, however, many countries allow all types of surrogacy arrangements[5].

Ethical perspectives of Surrogacy

The World Health organization reported that over 830 women die from pregnancy or childbirth-related complications around the world every day. Around ten million women suffer from obstetric related injuries, infections or diseases as a result of pregnancy. Surrogacy has been made possible with the new techniques of Assisted Reproduction Technology (ART). There is significant risk to the life of a surrogate mother. This risk is higher in surrogates then those of normal pregnancy due to multiple births and caesareans in surrogates[6].

Many important ethical questions remain unanswered even in countries where surrogacy is being widely practiced and considered as legal: These include:

- What if the surrogate mother dies of the complications of pregnancy or delivery?
- What if the surrogate wants to maintain privacy?
- What if the surrogate wants to keep the child?
- Is this not baby selling when the child is given to the intended parent for a fee. Apart from physical and emotional detachment from the child once it is born, the gestational mother suffers a lot. Her body and emotions are exploited and her health is potentially endangered
- Rather than valuing human life, the miracle of birth has been turned into just another commercial transaction and business opportunity for generating profits.
- Can a surrogate opt for abortion?
- Can a genetically related parent ask for parental partnership of child?
- Who decides the fate of the surplus embryos?

In surrogacy the rights of the child are almost never considered. The child is transferred from the "gestational carrier" to the intended parents.

In every civilized society, there is great respect for all human beings from the moment of conception to death, respect of family and motherhood and dignity of every child. Surrogate motherhood does not take into consideration the reciprocal respect for the right within *marriage* to become a father or mother. Surrogacy represents failure to meet the obligations of *maternal love,* of conjugal fidelity and of responsible motherhood. Hence is it ethical for the gestational mother to have a child that she will gestate but leave after birth? Surrogacy violates the rights of the child mainly because it treats the child as an object, or commodity. The child is denied of his/her right to information about her biological parents, any siblings he/she may have in any stage of life.

As far as commercial surrogacy is concerned, it is mostly considered as deeply unethical because it involves the exploitation of the woman who rents her womb for a fee. Even *altruistic surrogacy* does not have an ethical basis due to the above-mentioned concerns. The European Union decreed that surrogacy should be prohibited and treated as a matter of urgency due to human rights violations[7]. On the other hand, the increasing trend of

cross border surrogacy is related to problems in citizenship, nationality, motherhood, parentage, and rights of the child. There are occasions where children are denied nationality of the country of the intended parents and this resulted in a long legal battle. For example, the case of the German couple with twin surrogate children or the Israeli gay couple who had to undergo DNA testing to establish parentage or risk a bleak future in an orphanage. Children have been disowned by their intended parent and have had to spend their life in an orphanage[8].

In India, where commercial surrogacy is allowed, the whole process is being operated by the commercial agencies. The surrogate women have no right on any decision pertaining to their own body and life. There is no provision of psychological screening or legal counseling, which is mandatory in the USA. After recruitment for surrogacy, these women are shifted into hostels for the whole duration of pregnancy on the pretext of taking antenatal care. The real motive is to guard them and to avoid any social stigma of being an outcast by their community. These women spend the whole tenure of pregnancy worrying about their household and children. There have been circumstances when an unfavorable pregnancy outcome has led to non-payment of any compensation, and there was no provision of insurance or post-pregnancy medical and psychiatric support for them. This allowed the rich women who do not want the trouble of carrying their own pregnancy to resort to hiring surrogate mothers[9].

There are several other issues related to surrogacy which require a legal framework for the parents, the surrogate mothers and society[9]. Among the issues that needs to be addressed include:

1. What if the child born after the surrogacy arrangement lacked financial support due to death of the intended parent(s) or divorce between the parents with subsequent non-willingness to take care of the child?
2. Is it not a grave disservice to take away the child from a surrogate leaving behind her compromised self-dignity, creating enormous stress, anxiety, and emotional distress for surrogate mother[10]?
3. Ethical issues related to gender, inequality, autonomy, breastfeeding etc[11].

Islamic Perspectives of Surrogacy

It is our human nature to wish and have children, family and relations. In Islam, children and wealth are considered as adornments for this world,

"Wealth and children are [but] adornment of the worldly life. But the enduring good deeds are better to your Lord for reward and better for hope"[12].

Islamic teachings emphasize the crucial role of the family structure and institution of marriage, and inseparable from this, is the act of procreation,

"*And Allah has made for you from yourselves mates and has made for you from your mates' sons and grandchildren and has provided for you from the good things. Then in falsehood do they believe and in the favor of Allah they disbelieve"*[13].

Seeking the treatment for infertility is appropriate and it must be undertaken within the boundaries of *Sharia'h,* and under no circumstances is a third party intervention permissible. Assisted Reproductive Technology (ART) is permitted in Islam, and the practice must be strictly between the husband and wife and must not be intruded by any third party. Whether in the form of a sperm, an ovum, an embryo or a uterus. Hence, the widespread practice in ART facilities of sperm, ovum, and embryo

donation and the "rental" of a uterus is incompatible with the Islamic injunctions related to human reproduction[14].

Muslims must follow the theological maxims of the *Glorious Qur'ān* and *Sunnah* and practitioners of Islamic law must ascertain the permissibility of these new technologies. Though having children is desirable, it is not an absolute component of life as enunciated in the following verses:

To Allah belongs the dominion of the heavens and the earth; He creates what he wills. He gives to whom He wills female [children], and He gives to whom He wills males. Or He makes them [both] males and females, and He renders whom He wills barren. Indeed, He is Knowing and Competent [15].

All forms of surrogacy are prohibited in *Sharia'h,* even if practiced by a legally married couple, who donate their gametes for fertilization for onward implantation into the womb of the surrogate mother[16]. All Muslim jurists prohibit the implantation of the embryo into the uterus of the surrogate mother who is not his wife. The *Glorious Qur'an says*:

"Those who pronounce thihar among you [to separate] from their wives - they are not [consequently] their mothers. Their mothers are none but those who gave birth to them. And indeed, they are saying an objectionable statement and a falsehood. But indeed, Allah is Pardoning and Forgiving"[17].

A surrogate mother is outside the partnership of marriage and will not be considered as the parent[18]. There are sufficient anecdotal evidences to show that the bondage which takes place between the surrogate mother and the child in her womb can, and does give rise to situations in which the child subsequently becomes the victim of struggle for custody between a surrogate mother and intended social parents. The conflict is even more intense when the surrogate is also the biological mother.

For legal reasons, the woman who bears the child is recognized as the mother[19]. Linguistically and Islamically, the Arabic word for "to give birth" is *Walad*, and for "mother" it is *Walidah,* or the "one who gives birth." The above-mentioned verse from the *Glorious Qur'an* states that,

"*None can be their mothers except those who gave them birth[20]"*.

If surrogacy is still practiced despite the prohibition, it is the consensus of Islamic scholars that the birth mother is the "real" mother. Muslim scholars consider surrogacy for hire violates Islamic ethics by reducing the sacred acts of marriage and childbirth to a commercial contract. This is also supported by the *Hadith*:

The child is attributed to him on whose bed he is born; but they did not mention this:" For a fornicator there is stoning.[21]"

Other than the question of lineage and motherhood, the wellbeing and rights of the child which is guaranteed in Islamic *Sharia'h* is compromised in surrogate parctices[18].This is evident from the following verse in the *Glorious Qur'an* which gives complete protection of the child and the legal parents,

"*Mothers may breastfeed their children two complete years for whoever wishes to complete the nursing [period]. Upon the father is the mothers' provision and their clothing according to what is acceptable. No person is charged with more than his capacity. No mother should be harmed through her child, and no father through his child. And upon the [father's] heir is [a duty] like that [of the father]. And if they both desire weaning through mutual consent from both of them and consultation, there is no blame upon either of them. And if you wish to have your children nursed by a substitute,*

there is no blame upon you as long as you give payment according to what is acceptable. And fear Allah and know that Allah is Seeing of what you do[22]*"*.

By introducing a third party intervention into the family equation, an issue of the identity of the child becomes evident. In Islam, every child has a right to a definite parentage, namely, that of a father and mother. In case of a hired womb, the question of real motherhood arises, i.e. is the real mother the genetic mother who provides the egg from which the child is born? Or is she the woman whose womb serves as a carrier for the child? Such confusion is bound to affect the child emotionally as he will be torn between two mothers.

A new problem of legality of parentage will also arise and the entire procedure will amount to dehumanizing the process of human procreation, by reducing the womb to the level of a commodity that can be bought or rented for service:

"He it is Who created you from a single being, and He it is Who made from it its mate. He it is Who created for you eight heads of cattle in pairs. He creates you in your mothers' wombs, giving you one form after another in threefold depths of darkness. That, then, is Allah, your Lord. His is the kingdom. There is no god but He. So, whence are you being turned astray"[23]*?*

Such a process, yet again, violates the dignity and honor that Allah has bestowed upon man and woman. Moreover, surrogacy involves introducing the sperm of a male into the uterus of a woman to whom he is not married and, it clearly falls under the specific category of transgressing the boundaries of Allah, as stated in the *Glorious Qur'ān*:

"And they who guard their private parts, except from their wives or those their right hands possess, for indeed, they will not be blamed - But whoever seeks beyond that, then those are the transgressors[24]*"*.

Conclusions

The consensus among Muslim scholars is that surrogate motherhood in all its forms is not allowed in Islam. Making temporary marriage arrangements for surrogacy purposes is also prohibited in Islamic *sharia* and placing an embryo (sperm and ova taken from legally married couple) into the womb of second wife is also not permissible[25].

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SEX SELECTION

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Abstract

Sex selection, also known as gender selection, is a way of ensuring that a couple will have a baby boy or girl according to their choosing. This is most commonly practiced among couples who already have children of one sex or the other, and who desire to "balance" the family. Critics of the practice argue that it can lead to favoritism of one sex over another, and more widespread population imbalance.

How is it done?

Low-tech methods of sex selection have been around for a long time, involving old wives' tales such as using certain positions for intercourse, following special diets, or timing the menstrual cycle. In more modern times, special medical clinics have been set up to use methods such as:

- ❖Sperm sorting: Sperm are sorted into male and female samples via flow cytometry. The sperm of the desired sex are then introduced to the womb via intrauterine insemination (IUI) or In Vitro Fertilization (IVF). This procedure can be done with 70-90% accuracy.
- ❖PDG (Preimplantation Genetic Diagnosis): This test is used to detect genetic diseases but can also detect an embryo's sex. Used in conjunction with In Vitro Fertilization (IVF), its users claim a 99.9% success rate.
- ❖Selective Abortion: In cases where a woman is already pregnant, blood and DNA tests can accurately detect the sex of the child, and selective abortion can then be used to discard unwanted pregnancies. For the highest level of accuracy, blood and DNA samples must be taken after the seventh week of pregnancy.

Sex selection is however permitted if a particular sex predisposes to a serious genetic condition. One of the first couple to use this technique of sex selection was hoping to escape a deadly disease known as x-linked hydrocephalus, which almost always affected boys. Embryonic sex selection would make possible the weeding out of other serious x-linked disorders including, Duchene muscular dystrophy, hemophilia, and fragile X syndrome. Accordingly, decisions not to attempt replacement of embryos produced in vitro on the grounds that they show serious chromosomal or genetic anomalies, such as aneuploidy, cystic fibrosis, muscular dystrophy or hemophilia, are accepted[1].

The prophet Muhammad (PBUH) said: "Choose for your offspring the suitable woman for hereditary plays a role".

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Ethical views

Although the successful development of sex selection technologies represents clear medical and scientific advancement, their use is a subject of intense ethical debate amongst clinicians, philosophers and bioethicists alike[2].

Although sex selection for medical purposes is generally accepted as ethically appropriate, concerns about endorsement of sexist practices, disruption of the sex ratio, or exacerbation of sexist discrimination has led the overwhelming majority of countries regulating Preimplantation Genetic Diagnosis (PGD) to prohibit its use for sex selection for social reasons. Professional societies and international policy documents have also joined the opposition to this practice on similar grounds[3].

Worldwide, sex selection for nonmedical reasons is generally defined as gender discriminatory (whether prior to pregnancy or post-pregnancy). A host of international human-rights laws, national laws and regulations, and ethical bodies of leading professional associations suggests that it infringes ethical practice and the shared responsibility of nations to protect and promote human-rights principles, particularly that of non-discrimination[4].

Islamic Views

In Islam, sex or gender selection is only up to God[5].

The Glorious Qur'an unequivocally affirms that:

(...يَخْلُقُ مَا يَشَاء يَهَبُ لِمَنْ يَشَاء إِنَاثًا وَيَهَبُ لِمَن يَشَاء الذُّكُورَ)

"He (Allah) creates what He wills. He bestows female upon whom He wills, and bestows male upon whom He wills"[6].

Hence, it could be safely argued that gender selection on its own constitutes unacceptable interference in the divine demographic order and, ipso facto, a nullity under the law of Islam.

Abortion or infanticide has long been used as means of sex selection. Arabs more than 1400 years ago, before Islam, used to practice infanticide for gender selection. The Glorious Qur'an described this act and condemned it.

It states in one version:

(وَإِذَا الْمَوْؤُودَةُ سُئِلَتْ،بِأَيِّ ذَنبٍ قُتِلَتْ)

"On God's Judgment Day the entombed alive female infant is asked, for what guilt was she made to suffer infanticide?"[7].

Gender selection technologies have been condemned on the ground that their application will discriminate against female embryos and fetuses, so perpetuating prejudice against the girl child, and social devaluation of women. Such discrimination and devaluation are condemned in Islam. Application of PGD or sperm sorting techniques for sex selection should be discouraged in principle. It should not be used for selection of the gender unless there is a clear medical indication.

Islamic *Fiqh* Council of Islamic World League passed legal resolution (*Fatwa*) in its 19th meeting held in November 2007, and banned gender selection performed specifically for social reasons. It allowed gender selection for medical reasons only.

Sex ratio balancing in the family is considered acceptable by few scholars for very limited cases such as a wife who delivered five or six daughters and her husband has dire need for getting a boy.

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ETHICAL ISSUES RELATED TO SPERM, OVUM, EMBRYO BANKS AND POSTHUMOUS IMPREGNATION

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Abstract

With the advancement of different technologies of assisted reproduction there are new opportunities as well as associated ethical, moral and social issues. Science and technology should be guided by universal ethics and values, otherwise it would lead to many problems. Cryopreservation and similar technologies have enabled the storage of sperm, ovum and fertilized ovum (embryo) for long periods of time. These new technologies have been used as well as being misused. These issues will be discussed from an ethical perspective with special emphasis on Islamic medical ethics.

Keywords: Sperm Bank, Ovum Bank, Embryo Bank, Posthumous impregnation

Introduction

Islamic bioethics has a positive attitude towards IVF provided it is carried out within the context of a legally married couple. For married couples, procreation is not only encouraged but also a necessity, *daruriyyat*. As IVF aims at procreation, this technique is totally welcome in Islamic bioethics. Searching options for treatment of infertility is a natural instinct acknowledged by Islam[1-7]. The stories of Prophets Abraham and Zakariyya is instructive on this aspect of approach to issues of infertility. Assisted reproductive technologies helps to fulfill one of the purposes of *Shari'ah* [Preservation of Progeny (*Hifz al-Nasl*)].

According to an Organization of the Islamic Conference (OIC) Resolution, the following methods, in case of necessity, are permissible, provided the following conditions are fulfilled: (1) In vitro fertilization of a woman's ovum by her husband's semen and implantation of the fertilized ovum in the womb of this same woman. (2) External insemination, by taking the semen of a husband and injecting it in the appropriate place in the uterus of his wife, for in vivo fertilization[8],

Ethical issues with sperm/ovum bank and posthumous impregnation:

In order to use the husband's sperm, the sperm and fertilized ovum are frozen and preserved in a sperm bank. This raises three questions:

1. Is a man allowed to preserve his sperm in this frozen state?
2. Are married couples allowed to preserve their fertilized ova for future use?
3. Is it permissible to sell the sperm of the fertilized ovum?

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There is nothing wrong in freezing and preserving sperm and the fertilized ova provided that a) serious steps are taken to ensure that no mixing of the donor's sperm with those of other donors can occur, and b) the sperm is only used to impregnate the donor's own wife. This can only be undertaken after the free and informed consent of the spouse is obtained. The excess pre-embryos produced can he frozen and stored in liquid nitrogen, a technique called cryopreservation. But cryopreservation should only be allowed in specially designated sperm and pre-embryo banks or ART centers accredited by the relevant health authorities. An exact and complete proof system of documentation must be in place to guard against mixing of lineages and commercialism. Confidentiality of information must not be breached and tight security procedures should prevent unauthorized access to records[9-10]. In addition, the European Council for Fatwa and Research also states: "It is permissible for the wife to use the sperm of her husband for fertilization unless she is divorced or the husband dies, In case the wife is separated from her husband (i.e. by divorce or death), it's permissible for her then to get rid of the frozen sperm or its remnants[11]. We can therefore conclude that that posthumous impregnation is prohibited in Islam.

Ikhlas Abbas, a 32-year-old from the West Bank city of Tulkarm, is the first Palestinian woman to have undertaken the cryopreservation of her husband's sperm for IVF treatment in 2003. She states:

When my husband (leader of the Ezzudin al-Qassam Brigades in the West Bank) knew that he was wanted by Israel, he decided to put a specimen of his sperm in a medical center, so that I can use it in case he was sentenced to life imprisonment.

After being arrested by Israeli troops, he raised the idea among prison inmates, who were very enthusiastic, particularly as being detained in prison they could not have children, Mrs. Abbas added[12].

Sperm/ovum donation in the light of necessity of preservation of lineage (*Hifz al-Nasab*)

IVF treatment using donated sperm is absolutely forbidden in Islam because no third party can be involved in a marriage. While commenting on this issue, Sheikh Ahmad Kutty, senior lecturer and Islamic scholar at the Islamic Institute of Toronto, Ontario, Canada, states: "Since it is undoubtedly reprehensible and utterly sinful, no Muslim should ever entertain such a possibility for conceiving a child. A Muslim should accept what Allah has chosen for him or her. To accept Allah as a Sovereign Lord and Creator means to believe in His will and ultimate wisdom[12]."

The Glorious Qur'an states:

And God has given you mates of your own kinds and has given you, through your mates, children and children's children, and has provided for you sustenance out of the good things of life. Will men, then, [continue to] believe in things false and vain, and thus blaspheme against God's blessings?[14] .

This implies that children can only be conceived through the union of husband and wife. So, IVF is Islamically acceptable and commendable strictly under the following conditions:

1. It must solely involve the husband and wife with treatment performed during the span of their marriage only.

2. The union of sperm and ovum must not take place after the husband dies or after divorce.
3. The fusion of sperm and ovum should take place only within the marriage contract.
4. Any donation of alien semen is forbidden.
5. A divorced woman is not permitted to receive the fertilized ovum (embryo) of her ex-husband.
6. A widow is not allowed to take sperm after the death of her husband.
7. A woman can use the frozen sperm of her husband only when both of them are alive.
8. Using frozen sperm before marriage is not permitted.

The family bond is a very significant and strong phenomenon in Islamic bioethics and is jealously protected. Islamic ethics allows divorce, but does not encourage it. Once the woman becomes a widow or is divorced, the marriage contract is considered as dissolved. Any stored semen of her husband automatically becomes alien to her.

Ethical issues with spare embryo, sperm, ovum

IVF and Protection of Life (*Hifz al-Nafs*)

The IVF procedure may lead to some surplus and unused sperms, ova and zygotes. Ethical issues related to spare embryos involve the following questions:

1. The most important ethical issue being, whether an embryo formed after fertilization in a test-tube and not yet in the womb of the mother should be considered a human being with all the rights of a human being?
2. Is it correct to produce embryos only for research purposes?
3. Is it right to destroy spare embryos?
4. Can these embryos be used for research purposes?

Regarding the first question we should have a clear understanding of what exactly the soul or '*ruh*' is according to the Qur'an. This idea is referred to in different verses of the Qur'an and several meanings have been given by commentators. Abdullah Yusuf Ali and Mohammad Asad considered the '*ruh*' to be 'divine inspiration'. According to Abü Hamid al-Ghazäli, in 'Ihya Ulum al-Din', the stage at which the soul (*ruh*) is breathed into the forming body within the womb, occurs after it has passed through the stages of *Nutfah*, *Alaqah*, *Mudgah*, bone formation and flesh formation that covers the bone. We are currently capable of understanding the issues of early life in the embryo, with a fair amount of knowledge about the *Shari'ah* concept of embryo ensoulment and its timing and significance for the Muslim medical practitioner and for the Muslim Jurist[15]. Qur'anic verses indicate seven stages of fetal development[15].

The Glorious Qur'an states:

"Now, Indeed, We create man out of the essence of clay, and then we cause him to remain as a drop of sperm in [the womb's] firm keeping"[16].

The first stage: This points to the creation of Adam from clay — that is soil and water. In other words, sperm and ovum come from human bodies which are built from nutrients that originate from clay.

The Glorious Qur'an states:

"Who makes most excellent everything that He creates. Thus, He begins the creation of man out of clay; then He causes him to be begotten out of the essence of a humble fluid"[17].

"O mankind If you have a doubt about the Resurrection, [consider] that We created you out of dust, then out of a [fertilized egg], then out of a leech-like stage, then out of a [chewed like] flesh, partly formed and partly unformed, in order that We might manifest [Our Power] to you; and We cause whom We will to rest in the wombs for an appointed term, then do We bring you out as babies, then [foster you] that you may reach your age of full strength; and some of you are called to die, and some are sent back to the feeblest old age, so that they know nothing after having known [much], and [further], you see the earth barren and lifeless, but when We pour down rain on it, it is stirred [to life], it swells, and it puts forth every kind of beautiful growth [in pairs]"[18].

The second stage: The outcome of sperm-ovum unification is the formation of the 'zygote.' This is explained scientifically by stating that half the number of chromosomes is derived from each parent and then added together to form the fertilized ovum.

The third stage: This is the stage of the hanging clot which forms around the seventh day from fertilization. The picture of this early fetus looks like an object hanging to the endometrium by fine villi which will develop further in stages. Many scholars identify this stage as the first and very early form of life in human development.

The fourth stage: The fetus in this stage of development looks like a partially chewed piece of meat (the Arabic word '*mudgahah*' is used to refer to this flesh mass or mass of somites). This stage begins at the end of the third week or the beginning of the fourth week.

The fifth stage: This is the stage of bone development. The embryo is nothing but a boneless lump. Its cartilage tissue is transformed into bones in due time as described in the Glorious Qur'an which is followed by their being clothed by muscular flesh (the Arabic word '*lahm*' stands for the muscular flesh).

The Glorious Qur'an says:
"and then We create out of the drop of sperm a germ-cell, and then We create out of the germ-cell an embryonic lump, and then We create within the embryonic lump bones, and then We clothe the bones with flesh— and then We bring [all] this into being as a new creation: hallowed, therefore, is God, the best of artisans!"[19].

The sixth stage: Several days after bone development, early muscles start around the vertebrae at the 6th week and muscles around the extremities at the 7th week.

The seventh stage: This is the stage in which a new creation is formed. According to some contemporary scholars, fetuses vary slightly in acquiring the '*ruh*.' The minimum time is 40 days. The majority view is that the '*ruh*' starts after 120 days of fertilization[20].

Based on this process of human development outlined in the Qur'an, we can conclude quite easily that there is nothing wrong with the idea that embryos created in a test-tube have no soul. They do not acquire consideration as human fetuses unless restored to the uterus of the

mother. These embryos are alive and viable[15].

In answering the question as to whether it is correct to produce embryos only for research purposes, we can say that it is true that compared to stem cells derived from early embryos, the potential of tissues from cord blood, fetuses (mature embryos) and adult tissues are more limited, Nevertheless, embryos must not be created for the purpose of research only, since to create a life in order to end it rivals the actions that belongs only to God. Experimentation in human pre-embryos would he allowed only if it is for the good of the individual pre-embryos or if the mother's life is in danger. Following the research the pre-embryos can be transferred only to the owner of the ova, and only during the validity of a marriage contract[21]. Therefore, producing embryos for research concerns should be prohibited.

We should remember that Islam is a holistic religion which should he measured in its totality, not partially. Man was created to live in harmony with nature. As such, the social aspect of Islamic ethics is very strong and dynamic, always forbidding any kind of social disorder and disharmony. Nowadays, it is assumed that ends justify the means, that is isolating the stem cells of embryos for research purposes is fine because ultimately this benefits humanity and society as a whole without violating the rights of anybody. Anything that disrupts life and brings about chaos in the natural order is prohibited in Islamic ethics. So creating human embryos for research purposes alone does not satisfy our consensus.

Significant moral questions are raised by ethicists about the extra and unwanted fertilized ovum:
a) What should be done with the surplus fertilized ovum?
b) Should it be used or destroyed?

Islamic ethics finds no problem in destroying surplus fertilized ovum. Some may doubt whether this is a form of abortion or not, but this is not so, because firstly abortion only takes place after the implantation of the fertilized ovum in the womb and secondly abortion takes place in a woman's body not in a laboratory dish or test- tube.
Regarding the use of surplus fertilized ova, the OIC Resolution stipulates that only the number of ova required each time for insemination must be fertilized in order to avoid the existence of surplus fertilized ova. If an extra fertilized ovum exists in anyway, it should be left without medical care until its life ends naturally[8].

Embryos can be used for research purposes because research using surplus fertilized embryos could benefit humanity. In this case certain stipulations would come into force: the cryopreserved preembryos would only be used for research purposes with the free and informed consent of the couple and the research is limited to therapeutic research. The treated pre-embryos must be transferred to the uterus of the wife only, who is the owner of the ova, and only during the marriage span. Research aimed at changing the inherited characteristics of pre-embryos including sex selection is not allowed. Non- therapeutic research is permissible on excess pre-embryos to improve the treatment of infertility, contraception, reproductive medicine, genetics, cancer, and embryology.

However, the free informed consent of the couple is required[22].

Among the fundamental principles of *ijtihad* is *masalah mursalah* (considerations of public interest), and in dealing with the issue of spare embryo research, it is important to keep all of these principles and the basic legal framework in mind. When a Muslim scholar reaches a conclusion about stem cell research, he should evaluate such a conclusion in the light of public interest. If the well-being of the community is being threatened for some reason, then scholars must consider that fact, which is subsumed under principle three above, in reaching their final decisions. This is one reason why laws change with changes in time and place. Thousands of embryos that would otherwise be discarded in fertility clinics could potentially be used for research. This is not contradictory to the spirit of Islamic principles. It can even be said to be a societal obligation to perform research on these extra embryos instead of discarding them because people would surely benefit from such research. But there should be strict guidelines and proper procedures to ensure there is no potential abuse.

Conclusions

We have discussed the many positive aspects and opportunities that are achieved by the advancements in assisted reproductive technologies especially in terms of long-term preservation of sperms, ova and embryos. Islamic bioethics allows practice of these techniques within the context of a marriage contract. The post-modern scientific world is in a state of flux where moral judgments are increasingly overridden by competition to discover new technologies to patent and market. In such a scenario we must proceed carefully along the intricate pathways created by the power of science to maintain respect and the dignity for human life.

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SURPLUS EMBRYOS IN IN VITRO FERTILIZATION LABORATORIES

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Abstract

In Vitro Fertilization (IVF) has been succesful in assisting infertile couples to have their own offsprings. Not all of the embryos produced by IVF are transferred to the mother. Usually one to three embryos are transferred to the mother depending on the mother's age, embryo quality and number of embryos. The management of surplus embryos in IVF laboratories has become a controversial issue and has raised numerous ethical dilemmas. This paper discusses the status of the embryo status and its management based on both scientific and Islamic principles.

The human embryo has the potential to develop into a human being and should be respected from its inception. The existing literature suggested several methods to handle the surplus embryos, including cryopreservation, donated to other infertile couple, donated for research, or discarded.

A multidisiplinary collaboration is needed to solve the ethical dilemma over surplus embryos. A regulatory framework is needed to guide practitioners on how to manage surplus embryos in a scientific and ethical manner.

Keywords: Surplus embryos, Islamic views, bioethical problem

Background

The beginning of in vitro fertilization (IVF) was an inspiring event. Lesley Brown and her husband John, from Bristol city in the United Kingdom had failed to conceive naturally throughout nine years of their marriage.[1] In July 1978, she conceived the first test tube baby by IVF[2]. The birth of Louise Brown, was a landmark in the new era of assisted human reproductive technology.[1]

A single IVF cycle involves several stages over a few months. First, the potential mother takes a course of medications to stimulate egg production and to prepare the uterine lining for embryo implantation. The purpose of the IVF medications is to produce as many eggs as possible, without causing medical risks associated with hyperstimulation. Before ovulation, the eggs are retrieved in a medical procedure usually involving light anesthesia, then combined with sperm in a petri dish. The development of the embryos are monitored over the next few days since it is common for several embryos to arrest, or cease further development. On approximately the fifth day, or the blastocyst stage of development, one or more of the embryos is transferred to a woman's uterus[3]. The increased number of follicles, and consequently the number of oocytes retrieved, improved pregnancy rates in women undergoing IVF, not only by increasing the number of available embryos but also by allowing extended embryo culture and enabling the selection of the best quality embryo for transfer[4].

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Usually one to three embryos are transferred to the mother depending on mother's age, embryo quality and number of embryo[5]. Surplus embryos have posed several ethical challenges. The important question to ask is whether the embryo in its early stage has the same rights as a fully developed human being, and whether discarding unused embryos can be considered as killing a human being.

Islamic view on the status of the embryo

There is no clear explanation about the embryo in the Qur'an and hadith. Muslim scholars have several opinions regarding the embryo's status. One opinion suggest that the status of the embryo is not the same with that of a human being.

In the Quran, in Sura 15:54, the creation of human life is described, making it clear that only when God provided the human form with a spirit can it be called a human being. Some Islamic scholars regard this as happening within 40 days, and others within 120 days, which has been used as the permissible limit for termination of pregnancy. This does not mean that the fertilized eggs are not to be respected, but the respect increases over time, until the embryo reaches the age limit and no act of abortion can be conducted, unless the life of the mother is threatened[6].

Another opinion states that each stage of development of human life has a different status. The Holy Qur'an also mentions these gradual stages of physical development in Sura 23:12–14:

"We created man of an extraction of clay, then we sent him, a drop in a safe lodging, then We created of the drop a clot, then we created of the clot a tissue, then We created of the tissue bones, then We covered the bones in flesh; thereafter We produced it as another creature. "

The punishment for someone who assaults a pregnant woman, killing her unborn child, increases with the length of the pregnancy, which indicates the difference of status in the various stages of human development.[6] At the stage of ensoulment, it is regarded as another being.

The third opinion said "The protection of human life" is one of the five higher goals (*ad-daruriyyahad-diniyyah*) of Islamic Law. In the verses of the Qur'an that are related to the creation of human beings, the zygote is mentioned. Moreover, it is indicated that the zygote is the core of a human being.Therefore ontologically, the life of a human being begins with the fertilization of an egg and a sperm that belong to two alive and different human beings. Thus, the life of an embryo, which is an independent living being from the first moment, should be protected[7]

Bioethical views on the status of the embryo

The moral status of the embryo causes concern. Some have argued that the human embryo is the moral equivalent of a human adult or child, and as such, is due the utmost respect.[8]The human life starts from fertilisation moment (i.e when sperm cells fertilise oocytes) and from this moment its must be respected and protected[9]. The human embryo development should be protected at any stage because of its potential to develop into a human being[10].

The opposite argued that the embryo at its early stage should be regarded as biologically but not socially human[11]. The very early human embryo is not morally equivalent to a human being[8]. The human embryo obtained from IVF does not have the potential to develop into a human because it occupies a petri dish in the laboratory. This view is supported by the recognised high loss rate for human embryos throughout the early stages of pregnancy in nature[12]. Statistics show that 50%–80% of embryos do not survive. However, the early embryo should be respected, but not protected to the same level as the embryo at later stages[6].

The third view is a compromise between the first two. It acknowledges that the

developing human embryo is not a person, yet it does have moral importance, so is entitled to special respect[6].

Disposition options for spare embryos

There are several possible alternatives:
1) discard the embryo; 2) donate the embryo to a recipient who is either unable to produce eggs, or whose genetic background makes it inadvisable for her to use her own egg, 3) freeze the embryos for later transfer, should no pregnancy occur in the current cycle; or 4) donate the embryos to a research project[8] and 5) pursue compassionate transfer[13,7]

1. Discard the embryo.

The embryos discarded are usually those that are not developing properly in the culture dish, and thus may not be healthy enough to implant themselves if they were transferred to the womb. The early disposal of these embryos is merely carrying out what nature would probably do herself[8].

2. Donate the embryo to a recipient

The opportunity to donate one's spare embryo to another couple is frequently attractive to couples involved with in vitro fertilization. These couples have undoubtedly undergone a great deal of difficulty and emotional stress before they ever reached the stage of having extra embryos themselves, and the chance to help similarly unfortunate couples is often welcomed.[8]

One of the basic rights that Islam aims to protect is "the preservation of lineage and progeny". Moreover, this right is categorized as an extreme necessity (*ad-darurah*) in terms of the norms and value hierarchy. Islam objects to any danger that weakens the family institution and damages the lineage and progeny. Lineage refers to the bloodline of each person with their father-mother and grandfather-grandmother. This reality is stated in the Qur'an as: "It is He who has created from water a human being and made him [a relative by] lineage and marriage. Your Lord is All-Powerful"[14]. Every child deserves to be born with a precise lineage and it is their natural right to know their own bloodline. Accordingly, providing the continuity of progeny through a marriage that is built by a legitimate marriage covenant is one of the major aims of Islam. In fact, the necessity of marriage to have a child is emphasized in the Qur'an in several verses[7].

The third-party donation confuses the very nature of kinship, descent and lineage and the confusion of lineage is regarded as going against both God's nature and will, and is considered forbidden and ethically unacceptable. Islam, as a religion, mandates its followers biological inheritance. So the origin of a child should come through his or her biological father and mother[15]. Surrogacy is not accepted in Islam.

3. Freeze the embryos

An excess number of fertilized embryos can be preserved by cryopreservation and may be transferred to the same wife in a successive cycle, while the marriage is intact. This saves the financial expense and the physical and emotional strain of a second IVF cycle.

4. Donate the embryos to a research project

The subject of research on the human embryo is an important issue, which will dominate life in future. research on human embryos and stem cells has the potential to produce many major medical discoveries. Cures may be found for previously untreatable diseases and disorders; new and improved treatments may be developed. However, this research raises many ethical, moral, legal, religious, social and cultural considerations concerning the pursuit of medical research involving embryos and stem cells. Medical ethicists and religious groups are divided on the morality of pursuing these lines of research[6].

From the Islamic point of view, however, there is no consensus on stem-cell research so far, but the teaching of Islam shed lights on various important issues, which may help to clarify certain aspects attached to it. According to Islamic teachings, saving lives and curing diseases is a high priority, so

stem cell research, including therapeutic cloning, is favoured by some scholars. However, the way the research is performed, and the purpose for which it is performed, are of great importance[6].

In general, there are no major ethical concerns about the extraction of stem cells from umbilical cords, skin, bone marrow, etc., to be used directly in research as long as the donor gives permission. Human embryos provides a source for the most potentially useful stem cells. However, the harvesting of stem cells from embryos has become a serious political, religious, and ethical issue[6]. Those in favour of legalising embryo research, found support from those appealing to the potential benefits of such research, and from those who granted inexistent or low moral status to the embryos. This group also referred to the potentiality of embryos to become fully developed persons, but concluded that potential persons (i.e. embryos) were different from actual persons and that this was a sufficient reason to allow research on human embryos[16]. Blastocysts like the sperm or an ovum, have yet to develop a nervous system.The precursor to the nervous system, the primitive streak, does not develop until about 14 days after fertilization, long after the blastocyst stage[6]. The 14-day rule allows research involving human embryos up until the 14th day after fertilisation, a statutory binding limit in over a dozen countries[17]. The pro-life and pro-choice movements believe human life begins even before the 14 days rule and the embryo is worthy of legal protection[6]. On the status of the human embryo, according to the International Bioethics Committee (IBC) of UNESCO, if the embryo is a person, no embryo research is permitted, and even if it is not a person, it nevertheless demands respect as the source of human life[6].

5. Pursue compassionate transfer

In this process, the embryo(s) are thawed and transferred to the woman's vagina or uterus in a way that will not allow further development. If transferred to the uterus, the procedure is done without the use of hormones typically given during the IVF process to increase odds of pregnancy and during a time of the menstrual cycle that is not conducive to implantation of embryos[13], the embryos will be absorbed by the body in the same manner that is common in early-stage miscarriages[18].

The decision of the International Islamic Fiqh Academy, under the Organization of Islamic Cooperation, on this issue is : "In in vitro fertilization, only the number of eggs that will be implanted into the uterus should be fertilized each time. If surplus embryos are produced, these should be abandoned to the natural way of death without any medical protection[7].

Conclusions

Surplus embryos in IVF laboratories has become a dilemma and poses an ethical challenge. The moral status of embyos is the important point in this matter. Human embryo is not the same as person but embryos ought to be fully respected because of its potential to become a human being. A global consensus involving different disciplines, such as medicine, science, religion, philosophy and law is needed to manage this matter.

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ADOPTION IN ISLAM

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Abstract

Adoption has been in practice around the world for many decades especially in the developed world where the practice is formal and well organized, the situation in the Muslim world however is less known. The adoption rate, often quoted as ratio per live birth, is highest in the US[1], and the laws and regulations governing adoption in western countries would apply to and therefore affect all their citizens including the Muslims living in these countries if they wish to adopt. For a majority Muslim country like Malaysia for example[2], there is a formal arrangement for adoption classified into a few categories that include Muslim and non-Muslim adoption, and this allows for a transparent and regulated process to take place. The impetus for adoption is usually infertility but the growing spectre of human displacement and conflicts in many countries around the world may drive adoption because of sympathy and humanity especially among the Muslims because this is considered as an act of worship or *Ibadah*. This article will explore the concept of adoption from the point of view of Islam and a brief mention on the unresolved nuances with regard the western views on adoption as they are translated into laws and practices.

Keywords: Adoption, *Ibadah*, *Kafala,* Orphans, Founding Children.

Definition of adoption

Adoption is the practice in which an adult assumes the role of parent for a child who is not the adult's biological offspring and this process usually involves legal ownership of the child. The biological parents of the child therefore automatically lose the legal right over the child to the adoptive parents. This is different from the definition of adoption in Islam.

In Islam, the term adoption is called *"kafala",* which means sponsorship in the literal sense. It comes from the root word meaning "to feed" and is most apt translated as "legal foster parenting". Therefore, adoption in Islam can be defined as the promise to carry out without any monetary payment the upkeep, education and protection of a child, in the same way as a father would do for his own child[3].

The western definition of adoption fundamentally differs from the Islamic concept of adoption in three core areas: the question of blood lineage, the issue of inheritance and on the matter of marriage partners, all will be elaborated in the ensuing sections.

Classification of Adoption

In practice, adoption could be classified as closed or open. A closed adoption is akin to a secret adoption where all information regarding the biological parents is kept away and never divulged, whereas open refers to when the information of both adoptive and biological parents is freely shared, the extent to which that is so in practice varies between places[4].

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Types of Adopted Children

There are usually three types of adopted children:

1. Foundling Children
These are children who have been abandoned by their parents, usually in public places, for whatever reasons and this phenomenon unfortunately is rising in some semi-affluent Muslim countries like Malaysia for example[5].
The children are usually cared for in special homes and where appropriate are taken for adoption after a legal process. The identities of their biological parents are often unknown because of the nature of the problem and as a result they grow up without knowing who their biological parents are.

2. Orphans
The technical term in Arabic for orphan is *yatîm* (يتيم) which linguistically is a condition of being isolated and alone. A human *yatîm* is a child who has lost the father, and losing the mother is called *munqati* (منقطع) or someone who has been cut off. In Islam, there is a deductive definition that a child is an orphan upon the loss of either of his/her parents[6]. In a hadith compiled in *Sunan Abî Dâwûd,'Alî b. Abî Tâlib* relates that the Prophet (pbuh) said: "There is no orphan beyond the time of puberty"[7]. Thus, once they reach the age of puberty, they are no longer considered a *yatîm*. The above hadîth is evidence that the legal status of being an orphan ends when the child ceases to be a legal minor.

3. Adopted children with known and living parents
This instance refers to children who are usually adopted by their relatives, family friends or neighbours, whose biological parents are still alive and aware of the adoption. The child however may grow up not knowing who his biological parents are, but the adoptive parents do know.

The Islamic Viewpoint on Adoption

The practice of adoption was common before Islam, even the Prophet *Muhammad* (BPUH) himself adopted *Zaid Ibn Harithah*, a slave given to him by his wife *Sayyidatuna Khadijah, radhiya Allahu 'anha*.When *Zaid* accepted Islam, his biological father wanted him returned, but *Zaid* refused and as a result he was disowned by his father. The Prophet (PBUH) took the decision to declare his adoption of *Zaid*, and made him *Zaid Ibn Muhammad*, meaning *Zaid* the son of *Muhammad*.
The revelation of this verse in Surah *Al-Ahzab* in *Madinah* later, which prohibits adoption led to the return to*'Zaid Ibn Harithah'* instead of *"Zaid Ibn Muhammad*:

"...وَمَا جَعَلَ أَدْعِيَاءَكُمْ أَبْنَاءَكُمْ ذَلِكُمْ قَوْلُكُم بِأَفْوَاهِكُمْ وَاللَّهُ يَقُولُ الْحَقَّ وَهُوَ يَهْدِي السَّبِيلَ،ادْعُوهُمْ لِآبَائِهِمْ هُوَ أَقْسَطُ عِندَ اللَّهِ فَإِن لَّمْ تَعْلَمُوا آبَاءَهُمْ فَإِخْوَانُكُمْ فِي الدِّينِ وَمَوَالِيكُمْ..."

"He has not made your adopted sons as your own sons. These are merely words which you utter with your mouths: but Allah speaks the truth and gives guidance to the right path. Call them after their own fathers; that is closer to justice in the sight of Allah. If you do not know their fathers, regard them as your brothers in faith and your proteges"[8].
The prohibition of adoption is further reinforced by a hadeeth narrated by *Sayyidina Ibn Abbas, radhiya Allahu 'anhu,* and reported by *Imam Al-Bukhari:*
"من ادعى إلى غير أبيه أو انتمى إلى غير مواليه فعليه لعنة الله والملائكة والناس أجمعين"

"Whoever claims the lineage of someone other than his (biological) father, or gives his loyalty to other than his proteges, on him shall be the curse of Allah, and of the Angels and of the men altogether"[9].
In another *hadeeth*, narrated by *Sayyiduna Abu Zharr, radhyiya Allahu 'anhu*, and

reported by Imam(s) *Al-Bukhari* and *Muslim*,:

"ليس من رجل ادعى لغير أبيه - و هو يعلمه - إلا كفر..."

"No man, who knowingly claims a father other than his father, except that he goes infidel (*Kafir*)."[10].

It is clear therefore that Islam prohibits that an adopted child takes on the family name or the surname of his adoptive family and or inherits it. In an adoption where the child knows who he is and his biological parents, and that his adoptive family act as merely fostering parents, then there is no harm in that. This is because Islam highly values individuals or families who raise orphans as shown in the following hadeeth narrated by *Sayyidina Sahl Ibn Sa'd* and authenticated by *Imam Al-Bukhari*, that:

"أنا وكافل اليتيم في الجنة هكذا، وأشار بالسبَّابة والوسطى"

"I and the one who sponsors an orphan will be like this in Paradise, and he gestured with his index and middle fingers."[11].

On the basis that an orphan can be sponsored, or adopted according to the Islamic context, a foundling child or a relative's child can also be adopted. There is a difference here in that, although the orphan may have lost his father, he still has his mother and his father's uncles, while as for the founding or the homeless child, he may have no one to turn to.

"أَلَمْ يَجِدْكَ يَتِيمًا فَآوَى،وَوَجَدَكَ ضَالًّا فَهَدَى،وَوَجَدَكَ عَائِلا فَأَغْنَى،فَأَمَّا الْيَتِيمَ فَلا تَقْهَرْ،وَأَمَّا السَّائِلَ فَلا تَنْهَرْ،وَأَمَّا بِنِعْمَةِ رَبِّكَ فَحَدِّثْ"

"Did He not find you an orphan and sheltered (you)? And He found you wandering and guided (you).And He found you in need and made you free of need. Therefore, treat not the orphans with harshness, and for the one who asks, repulse not. And as for the Bounties of your Lord, do proclaim (it)"[12].

Conditions for Adoption in Islam

Adoption is allowed in Islam provided that the adoptive parents fulfil and abide by the following conditions:

1. He makes it known to the child that he's not his biological parent, and thus the child should be given his biological family name or surname. In the case that the biological parents of the child are not known, which means his natural family name or surname may not be known, he can be given a general surname, such as Abdullah or Abdul-Rahman or names which gives impression of belonging to Allah rather than to the adoptive father or his family.

2. An adopted child inherits from his or her original biological parents, not automatically from the adoptive parents. An adopted child does not inherit from his adoptive parents and therefore it will be wise and greatly rewarding for adoptive parents to grant a will *(Wasiyyah)* that entitles their adopted child to a portion not more than 1/3 of their wealth[13].

3. When the child has grown up, members of the adoptive family are not considered blood relatives and are therefore not *mahram* to him or her. This refers to a specific legal relationship that regulates marriage and other aspects of life where members of the adoptive family would be permissible as possible marriage partners, and rules of modesty exist between the grown child and adoptive family members of the opposite sex. If however the child was two years old or less and was also breast fed directly by the adoptive mother for at least a day and a night (equivalent to15 times consecutively) then the child will become *mahram* to the new family and *hijab* is unnecessary.

4. If the child is provided with property/wealth from the biological family, adoptive parents are commanded not to intermingle that property/wealth with their own. They serve merely as trustees for

property given to the child by his biological family.

Responsibilities of the Adoptive Parents

The responsibilities of the adoptive parents to any adopted child is similar with the arrival of a new child into the family.

1. The adopted child must be given education with emphasis on the knowledge about his Creator and his Islamic etiquettes and identity. Every child is born Muslim, and it is his parents that turn him into a Jew, or a Magi. It is imperative therefore that the education is geared to nurture the intellectual and spiritual growth of the child.
2. The financial needs of the child must be provided for according to the ability and capacity of the adoptive family. The care for the child would be like the care for their biological children. When he needs to be corrected for his mistakes, they should correct him, even if that will break his heart; just like their biological child's heart will be broken, should they have corrected him. That is part of the *Tarbiyah* process of any child.
3. When he grows up, they have to get him married righteously. They become *'Waliyy'* for their adopted daughter. If the adoptive mother couldn't breastfeed the daughter, they can't be *'Waliyy'* for the girl. By default, a matured male doesn't need a *'Waliyy.'*[14].

Challenges for Muslims in the West regarding Adoption

It is unanimous that the practice of adoption as prevalent in much of the Western world, is alien and prohibited by dictates of Islam but with the growth of the Muslim population in the West, there is now an increased urgency to look at this issue as some Muslims wish to adopt children from jurisdictions governed by Islamic law.

The gap between Western and Islamic law on adoptions is fundamental, Islamic jurists are unanimous in holding that traditional closed adoption violates Islamic rules which emphasize lineage. Instead, a guardianship model known as *kafalah* was devised to work around the religious restrictions, and in fact there is evidence that open adoption is increasingly gaining traction. With respect to the Islamic context, there are still unresolved issues between the *kafalah* model and open adoption that must be addressed and reconciled.

A recent ruling in 2012 by European Court of Human Rights, in Harroudj v. France, to uphold France's refusal to allow an Algerian woman to adopt an Algerian baby, who was already under her care and control, pursuant to the Islamic *kafalah* guardianship system is timely and encouraging[15]. The court observed that under the UN Convention on the Rights of the Child, the *kafalah* model is accepted and defined as "alternative care," which it deemed on par with adoption. The court also noted that the fact *kafalah* is acknowledged under international law, and therefore should be a decisive factor in determining how states should accommodate it in their domestic law and deal with any conflicts that may arise. The court further noted that *kafalah* was fully accepted in French law and the granting of guardianship to Harroudj enabled her to make all the decisions in the child's interest. In other words, Harroudj was not deprived of any rights in not being allowed to change the *kafalah* to adoption. This acknowledgement is a great step in the right direction and provides much hope in working toward a mutually accommodating framework for Islamic adoptions.

Conclusions

Adoption as practised in the west is prohibited in Islam. In Islamic terminology the concept of *Kafala* is introduced, which is a form of a promised sponsorship, to give the adopted child a safe and loving home, parents, and education required to ensure the balanced growth of the adopted child

like their own. It must be emphasised that this is done solely for the sake of Allah (SWT), eliminating any other superficial desires rendering the best possible care environment to the child.

The circumstances of adoption in Muslim majority countries are more straight forward in the application of the Islamic viewpoint on the issue but less so in Muslim minority countries, mostly in the west. There is however a growing understanding between the concept of *kafalah* and adoption practices in the west to bridge the gap and allow for a meaningful coexistence between the two traditions. Until the adopted child matures and chooses to stay independent, the adoptive parents must always ensure that the child is accorded all the rights which are spiritual, moral, educational, social, and economic among others as this is an act of *Ibadah* to Allah (SWT).

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HUMAN GENETIC AND REPRODUCTIVE TECHNOLOGIES: AN INTERNATIONAL MEDICO-LEGAL-RELIGIOUS IMPASSE?

*Musa Mohd. Nordin**

Abstract

Heralded by the revelation of the double helical structure of the DNA molecule in 1953, the 21st century is aptly designated the biotechnology century. The 20th century of physics, which saw the transformation of silicon into computing magic, was embraced with enthusiasm by virtually every household. However, unlike her predecessor, the same cannot be said about the advancements in biomedicine.

These revolutionary procedures in biotechnology has probed the outermost boundaries of what is scientifically possible and acceptable. Micro-manipulation at the very earliest stages of human development, at the level of the embryo, single cell and genetic structure is undoubtedly a very delicate and sensitive issue with potentially explosive ethical, social, medico-legal and religious ramifications. Hence, the turbulent and not uncommonly hostile controversies that has since evolved.

Some of the issues in biotechnology which are debated contentiously and extensively across all segments of human society, include assisted reproductive technologies, human reproductive cloning, therapeutic cloning, embryo research, genetic engineering, euthanasia, organ transplantation, abortion and contraception.

The Jurisprudence of Biotechnology

As a complete and comprehensive way of life, the teachings of Islam encompasses all fields of human endeavours, spiritual and material, individual and societal, economics and politics, national and international. This is well understood from the revelation during the occasion of the prophet's farewell pilgrimage.

(...الْيَوْمَ أَكْمَلْتُ لَكُمْ دِينَكُمْ وَأَتْمَمْتُ عَلَيْكُمْ نِعْمَتِي وَرَضِيتُ لَكُمُ الإِسْلامَ دِينًا...)

"This day, I have perfected your religion for you, completed My favour upon you, and have chosen for you Islam as your religion" [1].

And the instructions which regulate our everyday activity of life is called *Shari'ah* (Islamic law). The *Shari'ah* is the epitome of the Islamic spirit, the most typical manifestation of the Islamic way of life, the kernel of Islam itself[2]. Bioethical deliberations is inseparable from the religion itself, hence Islamic bioethics must remain and flourish within the confines of the *Shari'ah*.

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All Muslim scholars and jurists are agreed that four sources of Islamic law remain in the forefront of all deliberations in Islamic jurisprudence (*Fiqh*), known as the *Masadir al Shari'ah* [3]. They are:

1. Quran.
2. *Sunnah* (authentic traditions of the prophet).
3. *Ijma'* (consensus).
4. *Qiyas* (analogy).

Others which are not founded on a material source (*nass*) from the Quran or *Sunnah* but capturing the spirit of the *Shari'ah* and taking into consideration the welfare of the community include:

1. *Istihsan* – the choice of one of several lawful options.
2. *Istishab* – continuation of an existing ruling until the contrary is proved.
3. *Urf* – customs or precedent which does not contradict nass.
4. *Maslahah or Istislah* – consideration of public interest or welfare.
5. *Shar'u man qabluna* – the laws of our predecessors, either confirmed or abrogated by the primary sources.
6. *Qawl as-sahabi* – the narrative of the companions of the prophet.

The purposes of the law (*Maqasid al Shari'ah*) arranged in their order of importance are directed towards the preservation of[4]:

1. *Deen* (religion).
2. *Nafs* (life).
3. *Aql* (mind).
4. *Nasl* (progeny).
5. *Maal* (property).

This classification which is permanent and immutable defines succinctly and clearly the objectives of the community and gives it balance and a sense of purpose. Three of these priorities are directly related to the preservation of health, namely life, mind and progeny.

And from the outset it must be emphasized that the *Shari'ah* is guided by five cardinal principles (*Qawaid al Shari'ah*). These are[5]:

1. The principle of intention – intent is all important in actions.
2. The principle of certainty – certainty cannot be changed by doubt and all acts are permissible unless there are clear prohibitions.
3. The principle of injury – do no harm, injury must be removed or compensated.
4. The principle of hardship – hardship calls forth ease and facilitation, need or necessity makes for allowing what is prohibited.
5. The principle of custom – custom or precedent is the rule unless contradicted by nass.

These cardinal rules lead the scholars and jurists to think of Islamic *Fiqh* as the subject of five vital conceptions[6]:

1. There are few absolute obligations (*takalif*).
2. Gradualism in the promulgation of laws.
3. Making the burden lighter when making and executing laws.
4. Hardship is avoided and necessity is taken into account.
5. Justice and equity must always prevail.

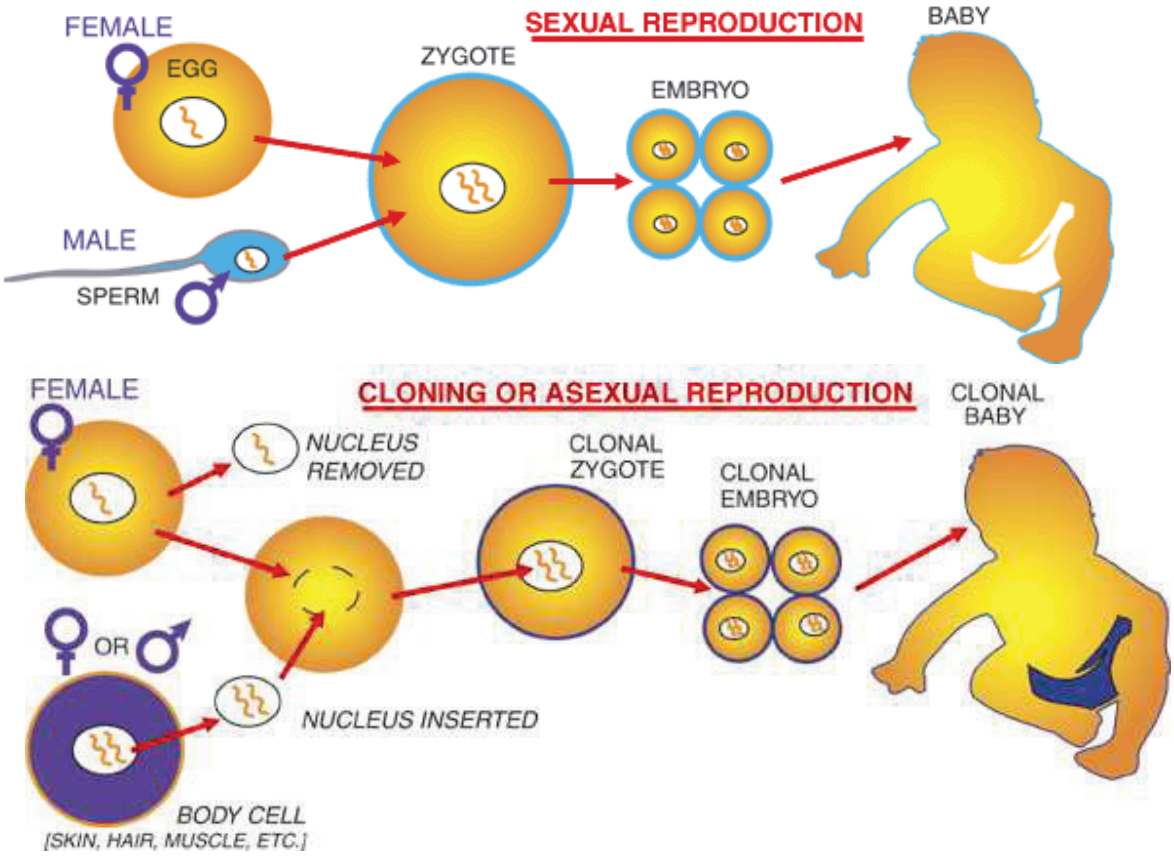
The *Shari'ah* is therefore a living, dynamic and relevant entity. It is for everyone, everywhere and for all times. It also describes itself as a guide, a light and a mercy[7]. It is this philosophy of the law which is alive to the contemporary challenges of advancing biotechnologies. I have chosen to illustrate this harmony and the relevance of the law to three areas of cutting edge biotechnology, namely:

1. Reproductive human cloning.
2. Therapeutic cloning.
3. Genetic technology and human embryo research.

Human Reproductive Cloning

When man was experimenting with cloning in plants, frogs and small marine animals, the Islamic Organization of Medical Sciences (IOMS) based in Kuwait, convened a seminar in 1983 in which 2 papers were presented which dealt with the potential of human cloning and the *Shari'ah* perspective on this possibility. When the cloning of Dolly the sheep by the technique of somatic cell nuclear transfer was announced in February 1997, the IOMS in their 9th *Fiqh* Medical seminar updated their juristic opinion on this most contentious issue[8].

Like the IOMS, virtually every Islamic seminar, jurisprudence council or individual scholars have concluded that cloning procedures aimed at producing human clones is not permissible. The majority considered it *Haram* (not permissible) in all its details[9].
Whilst a minority opinion considered it *Haram* as a way to prevent a cause of harm (the necessity to refrain from causing harm to oneself and others). This latter juristic opinion keeps open the option of readdressing the issue should new information become available and approved by *Shari'ah*. The use of somatic cell nuclear transfer technology even between husband and wife was also not approved.



The rationale for prohibition were as follows :

a. The basic concept in reproduction is to abide by the *Shari'ah* approved system of legally binding marriage, through the union of the sperm and ovum.
b. Human cloning is against the natural process (*Fitrah*) of human relationship of marriage and reproduction
c. The major harms far exceed the benefits. These include the disruption of lineage, family relationships and social fabric of humanity.
d. The anticipated social, moral, psychological and legal implications of human copies.
e. The possibility of interfering with the male-female population dynamics.

The ethics aside, the science of human reproductive cloning is not evidence based:

1. It is an inexact science – there were 277 attempts before Dolly was possible. "Even with mammals the risks are monumental let alone humans, it is criminally irresponsible" says Ian Wilmut, the "creator of Dolly". Failure rates are in excess of 98%.
2. It is an inefficient technology - Abortion rates are 10x higher, stillbirth rates are 3x higher. Natural reproduction is more efficient and … more fun.
3. Unproven safety – Dolly suffered from premature rheumatism and early death (she was "a sheep in lamb's clothings"). Other abnormalities include large offspring syndrome, underdeveloped lungs, reduced immunity, increased congenital anomalies. The list of misadventures increase by the day and which infertility expert or cloner is going to publish their failures!
4. Besides it compromises the gene pool - it reduces genetic variability and diversity. One virulent pathogen maybe sufficient to wipe out the whole clone population.

The national and international response to the new technologies of human reproductive cloning have suffered a policy lull. Eight years post-Dolly, only a few countries have either drafted or enacted laws to bring human genetic and reproductive technology under responsible societal governance. As of November 2003, 77% of countries have not taken action to ban reproductive human cloning. Malaysia is in the final stages of drafting laws to ban the reproductive cloning of human beings.

Apart from a small minority of "rogue cloners" there is an international consensus against the reproductive cloning of human beings. However the opportunity to elaborate an international convention to ban reproductive human cloning was lost when member countries disagreed on the extent of the ban.

The USA and Costa Rica in the Policy on UN Cloning Treaty 2003, proposed a full ban on both reproductive and therapeutic cloning. Whilst other member countries supported the Belgium proposal for a partial ban, that is to ban reproductive

cloning and allow national discretion on therapeutic cloning.

Therapeutic Cloning

Unfortunately, the confusion and disgust at the prospect of cloning and creating babies has been transferred to therapeutic cloning. In therapeutic cloning unlike human reproductive cloning the end point is not cloning a human being. This technology involves the production of human clonal embryos for the purpose of harvesting stem-cells, tissues and organs. This would open the potential of curing a whole host of chronic and debilitating diseases including diabetes mellitus, parkinsonism, myocardial infarction and spinal injuries.

The source of the totipotent stem cells has however been a source of intense controversy. Stem cells found in umbilical cord blood, bone marrow and aborted fetuses are generally acceptable from the ethical and moral point of view. Though less plastic, scarce and sometimes quite inaccessible, there have been some success stories with the use of these non-embryonic stem cells.

The use of embryonic stem cells (ESC) is however fraught with highly charged religio-bio-ethical debate. The source of controversy revolves around the various questions about when life becomes a human life; namely:

1. Is an ovum and sperm a person?
2. When do the products of conception become a person?
3. Does a zygote have a full set of human rights?
4. Does the foetus have a soul?

This concept of personhood is neither logical nor empirical. It is based on one's fundamental assumptions about the nature of the world. It is primarily a religious or quasi-religious concept.

The Roman Catholics believe that the soul enters the body at conception and the fertilized ovum is a human person will full human rights. Pope John Paul II, on 29 August 2000 said, "methods that fail to respect the dignity and value of the person must always be avoided. I am thinking in particular of attempts at human cloning with a view to obtaining organs for transplants: these techniques, in so far as they involve the manipulation and destruction of human embryos, are not morally acceptable, even when their proposed goal is good in itself".

The scientific paradigm defines the pre-embryonic stage as the period from fertilization up to the determinant of the primitive streak at the age of 14 days. The pre-embryo is unable to feel pain or pleasure and therefore has no moral status. They may be cryopreserved, discarded or used for research purposes.

Lord May of Oxford, the President of the Royal Society said, "to cut off this research (without clear understanding of the science of therapeutic cloning and its potential to contribute to mankind) would be an act of intellectual vandalism comparable to papal censorship of Galileo and Copernicus."

The first verse revealed to prophet Muhammad in the cave of Hira' translates as follows:

(اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ،خَلَقَ الإِنسَانَ مِنْ عَلَقٍ)

"Read! In the name of your Lord, who has created. Has created man from alaqa"[10].

This verse embodies two very significant messages. From the outset, the Quran emphasizes the primacy of knowledge and follows this with the first lesson in embryology, the very creation of man himself.

The Quran is a book of guidance to invite mankind to the truth and salvation. But nonetheless it contains many "signs" which invites mankind to reflect upon his creation and the world that surrounds him. In various verses, it illustrates lucidly both the physical and spiritual dimensions of man's creation. In the Glorious Qur'an:

(وَلَقَدْ خَلَقْنَا الإِنسَانَ مِن سُلالَةٍ مِّن طِينٍ،ثُمَّ جَعَلْنَاهُ نُطْفَةً فِي قَرَارٍ مَّكِينٍ، ثُمَّ خَلَقْنَا النُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَوْنَا الْعِظَامَ لَحْمًا ثُمَّ أَنشَأْنَاهُ خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ)

"And indeed We created man from a quintessence of clay. Then we placed him as a small quantity of liquid (nutfa) in a safe lodging firmly established. Then we have fashioned the nutfa into something which hangs (alaqa). Then We made alaqa into a chewed lump of flesh (mudgha). And We made the mudgha into bones, and clothed the bones with flesh. And then We brought it forth as another creation. So blessed be God, the best to create"[11].

The *nutfa* represents the blastocyst which embeds within the endometrium. The *alaqa*, much intrigued the distinguished embryologist, Prof. Moore who was puzzled at how 1400 years ago anyone could accurately describe it as something which clings to the inner uterine wall like a leech. The scholars of Quran were similarly unable to explain the concept of *mudgha* until microsopy revealed that the chewed lump of flesh resembled accurately the appearances of the somites. And note how explicit the verses has been in illustrating that the ossification centres preceded the formation of the myotomes.

In another verse the Glorious Qur'an very clearly revealed another phase of man's being, the process of ensoulment.

(ثُمَّ سَوَّاهُ وَنَفَخَ فِيهِ مِن رُّوحِهِ...)

"And breathe into him of His spirit"[12].

The soul is a metaphysical concept which is fundamental in Islam and it defines a human individual. The majority opinion in Islam accepts the 120th day of pregnancy as the time of ensoulment. Even though ensoulment occurs later, the embryo is respected from the onset of fertilization and acquires consideration as a human foetus after implantation.

And based on these fundamental premises, at least three Islamic *Fiqh* (Jurisprudence) Councils have given permission for the use of surplus embryos from IVF laboratories for ESC research[13,14,15]. However, it is not permissible at this juncture, to consciously generate pre-embryos either by conventional IVF techniques or somatic cell nuclear transfer (SCNT) for ESC research.

As at November 2003, 6 (3%) countries have allowed therapeutic cloning whilst 30 (16%) have prohibited it. The 6 countries in favour of allowing therapeutic cloning to proceed within stipulated policy guidelines are China, Singapore, Belgium, UK, Cuba and USA.

The Federal Embryo Protection Law (1990) of Germany prohibits both reproductive and therapeutic cloning. This represents the spectrum of countries with "relatively restrictive" laws related

to reproductive technologies. Others include Austria, the Scandinavian countries, Ireland, Italy, Netherlands, Spain and Switzerland.

The other end of the spectrum is represented by the United Kingdom's Human Fertilisation and Embryology Act (1990) and Human Reproductive Cloning Act (2001) and Singapore's Bioethics Advisory Committee (BAC) Report on "Ethical, Legal and Social Issues in Human Stem Cell Research, Reproductive and Therapeutic Cloning" which was approved by the government on 18 July 2002. The UK and Singapore "more permissive" regulations allows the generation of embryos by both IVF and SCNT technologies if there is a demonstrable and exceptional need which cannot be met by the use of surplus embryos.

The "in-between" policies are demonstrated by the Canadian's new Assisted Human Reproduction Act (2004) and Australia's Research Involving Embryos Act (2003). They both allow the utilization of surplus IVF embryos for research but prohibit the creation of human embryos for research and SCNT for research and reproduction. The current thinking in our Malaysian National Committee on Human Cloning seems to favour this line of thought and legal framework; which is also resonates well with the fatwa issued by the three jurisprudence councils in Jeddah, USA and Jordan.

Except for Israel, none of the nations in the Middle East have taken legal action to regulate either reproductive or therapeutic cloning. As at 6 November 2003, Bahrain, Iran, Jordan, Kuwait, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Syria, UAE and Yemen voted in favour of Iran's motion on the UN Cloning Treaty Process, to postpone further discussions for another 2 years. This is illustrated in the table below.

Region	**Countries**	**Reproductive Cloning**		**Research Cloning**				**IGM**	
		Prohibited		**Prohibited**		**Allowed**		**Prohibited**	
	#	#	%	#	%	#	%	#	%
Africa	53	1	2%	1	2%	0	0%	1	2%
Middle East	23	1	4%	0	0%	0	0%	1	4%
South Asia / East Asia / Pacific	33	6	18%	3	9%	2	6%	5	15%
Europe - Eastern	24	14	58%	8	33%	0	0%	9	38%
Europe - Western	24	16	67%	13	54%	2	8%	8	33%
Americas & Caribbean	35	8	23%	5	14%	2	6%	3	9%
World	**192**	**46**	**23%**	**30**	**16%**	**6**	**3%**	**27**	**14%**

Previously it was thought that it would be extremely difficult to develop comprehensive policies to govern human genetic and reproductive technologies.

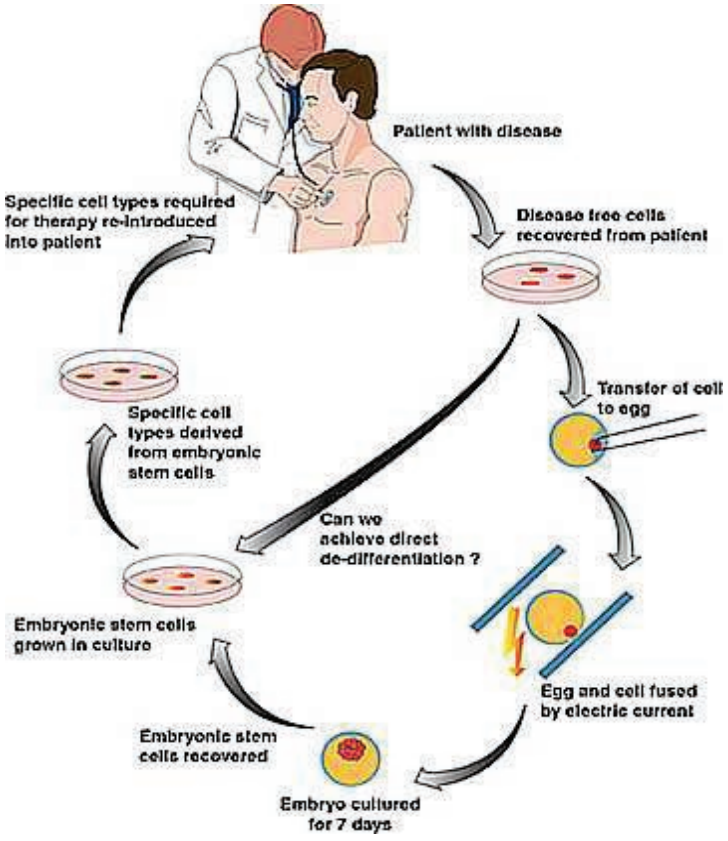
Despite the earlier skepticism, various countries have now shown that it is possible to break the policy deadlock and draft legislation to regulate these new technologies of human genetic modification. Despite their different political and social experiences, some of the national policies thus available have exhibited a remarkable sharing of core principles; namely:

a. they affirm technologies with a real chance of preventing or curing disease
b. they ban technologies which could harm children or open the door to free market eugenics
c. they ensure research involving embryos is tightly regulated
d. they establish publicly accountable means to review policies & make new ones
e. they pose no risk for reproductive rights

Probably one of the most far reaching thoughts on this highly controversial issue of ESC research has been that propounded by Sheikh Dr. Yusuf Al-Qardawi, a highly respected and contemporary Muslim scholar who related in his concluding remarks after a lengthy juristic deliberation the following position[16]:

"If it becomes possible through research to clone organs such as the heart, liver, kidneys or others which may benefit those who are in dire need of them; then this is permitted by religion and the researcher or scientist will receive the reward from Allah. This is because the research will confer benefit on humanity without loss to others or infringing upon them. Therapeutic cloning with this noble research pursuit is permissible and it is encouraged. In fact, in some circumstances, it may become mandatory to enhance this research in accordance with the need and man's research capability and accountability."

The following diagram illustrates the extreme potential for therapeutic cloning, with virtually zero risk of graft versus host disease (GVHD), with the option of either de-differentiation of the patients indigenous stem cells or utilizing somatic cell nuclear transfer technology to generate embryonic stem cells.



Genetic Technology and Human Embryo Research

Two *hadiths* (authentic traditions) related from the Prophet has helped us to have a better insight into the science of genetics.

"Select your spouses carefully in the interest of your offspring because lineage is a crucial issue"

"Do not marry your close relatives because you will beget weak offsrpings"

The second Caliph of Islam, Omar ibn El-Khattab, upon noting that a particular tribe intermarried with increased frequency, remarked to them :

"You have weakened your descendants. You should marry strangers (people outside your tribe)".

The spirit of the exhortations of the Prophet (PBUH) and his companion was to secure normal and healthy babies, protection of their early well being, endowed with the benefits of good genes from both parents and the prevention of congenital malformations and its consequent disabilities.

A variety of inherited diseases may now be diagnosed in the pre-embryo stage prior to implantation into the uterus. Highly sensitive polymerase chain reaction (PCR) techniques have enabled the rapid amplification of minute amounts of DNA material from the embryonic cells. Fluorescent in situ hybridization (FISH) technology with combination chromosomal probes have made possible the genetic analysis of embryonal sex and various aneuploidies[17].

Some of the potentially debilitating diseases which may be screened include Trisomy 13, 17 and 21, cystic fibrosis, haemophilia, Marfan's syndrome, incontinentia pigmentosa, x-linked immune deficiency, retinitis pigmentosa, fragile X syndrome, muscular dystrophy and Lesch-Nyhan disease. The first preimplantation genetic diagnosis (PGD) was achieved in 1989. Since then, well over 200 diseases or conditions has been further isolated with ongoing PGD research[18].

The First International Conference on Bioethics in the Muslim World held in Cairo from 10-13 Dec 1991 examined very carefully this area of pre-embryo research[19]. Collaborating this with the decisions of other scientific cum Islamic jurisprudence seminars, the following practice guidelines may be summarized:

1. Cryopreserved pre-embryos may be used for research purposes with the free and informed consent of the couple.
2. Research conducted on pre-embryos is limited only to therapeutic research. Genetic analysis of pre-embryos to detect specific genetic disorders is permissible. Hence diagnostic aids should be provided for couples at high risk for selected inherited diseases. The treated embryo may only be implanted into the uterus of the wife who is the owner of the ova and only during the span of the marriage contract.
3. Any pre-embryos found to be genetically defective maybe rejected from transfer into the uterus after proper counseling by the physician.
4. Research aimed at changing the inherited characteristics of pre-embryos (e.g. hair and eye colour,

intelligence, height) including sex selection is forbidden.

5. Sex selection is however permitted if a particular sex predisposes to a serious genetic condition. One of the first couple to use the technique of sex selection was hoping to escape a neurologically debilitating disease known as x-linked hydrocephalus, which almost always affected boys. Embryonal sex selection would make possible the weeding out of other serious x-linked disorders including haemophilia, Duchenne muscular dystrophy and fragile X syndrome.
6. The free informed consent of the couple should be obtained prior to conducting any non-therapeutic research on the pre-embryos. These pre-embryos should not be implanted into the uterus of the wife or that of any other woman.
7. Research of a commercial nature or not related to the health of the mother or child is not allowed.
8. The research should be undertaken in accredited and reputable research facilities. The medical justification for the research proposal must be sound and scientific and conducted by a skilled and responsible researcher.

The designer baby technology or inheritable genetic modification (IGM) has further accentuated the ethical debate often referred to as "slippery slope" issues. The world's first true designer baby, Nash Brown, was born on 29 August 2000. He was conceived specifically for the sake of his six year old sister, Molly who suffered from Fanconi's Anaemia. His umbilical cord blood was transfused into Molly, with the hope of curing her condition.

Another landmark case was in the UK in 2001, where a British couple was given the go ahead by the courts to select an IVF baby who is Thalassaemia free and has a tissue make-up which precisely match their son Zain who suffers from Thalassaemia and does not have a compatible donor. Umbilical cord blood from the IVF baby would be transplanted into Zain to cure his Thalassaemia.
The table shows that only 27 (14%) countries have taken action to ban the creation of designer babies.

Conclusions

Islamic medical bioethics is firmly grounded on the fundamental tenets of the Islamic *Shari'ah*. The close collaboration between the scholars of jurisprudence and the scientific and medical fraternity has enabled her to keep abreast of the plethora of advancing biotechnologies.

Despite the wide ranging bio-religio-ethical problems and dilemmas posed by these emerging biotechnologies, Islamic medical bioethics, has provided a "middle of the road" approach moderating between the extremes of conservatism and liberalism. This it does without impeding the genuine and responsible quest for new knowledge and breakthroughs in new research frontiers.
It has provided a legal framework for responsible societal governance of human genetic and reproductive technologies and banned all forms of free market eugenics.
Allah (SWT) says:

(وَكَذَلِكََ جَعَلْنَاكُمْ أُمَّةً وَسَطًا لِّتَكُونُواْ شُهَدَاء عَلَى النَّاسِ وَيَكُونَ الرَّسُولُ عَلَيْكُمْ شَهِيدًا ...)

"Thus we have appointed you a middle nation, that you may be witness against mankind, and that the messenger maybe witness against you …"[20].

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MORAL ISSUES ASSOCIATED WITH TEST TUBE BABY TECHNOLOGY: WESTERN ETHICAL PERSPECTIVE

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Abstract

Infertility is one of the major medical problems these days. But with the aid of some form of Assisted Reproductive Technology (ART), an infertile couple can be blessed with a child. There are a lot of techniques to overcome childlessness. However, these techniques also raise several ethico-religious and legal problems. Different bioethical thoughts or traditions varies in their approaches towards solving these issues. This paper focuses on the Western secular bioethical perspectives towards these reproductive interventions. It concentrates on the moral system of thoughts with reference to the epistemological and ontological dimensions. It employs phenomenological methods which consists of logical reasoning and critical reflections. Our evaluation suggests that Western ethicists offer some arguments both for and against the application of these modern assisted reproductive technologies.

Keywords: Test tube baby, in-vitro fertilization, assisted reproductive technology, Western philosophy, ethics.

Introduction

The impact of infertility upon a couple sometimes becomes a significant problem in life. Today, such difficulties can be set in the context of new possibilities that are being explored in the laboratories of medical science. It basically transformed the process of procreation from private personal relations between husband and wife into artificial means in the laboratory and in many instances the involvement of a third or a fourth party in the process. Infertility may be caused by certain 'defects' either in the wife or husband. The technique to overcome infertility is the application of the method popularly known as test tube baby technology or medically known as "In-Vitro Fertilization" (IVF).

In vitro is a Latin phrase meaning 'in glass.' So, in embryology, it is used in contrast to *in utero* or 'in the uterus'. Normally, human fertilization takes place *in utero*, strictly speaking in the fallopian tubes. IVF then is fertilization that is done artificially outside the woman's body, in a test tube.[1]The popular press often refers to children conceived through the IVF techniques as 'test tube babies.'

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Among the reasons for attempting IVF is to by-pass unhealthy, damaged or blocked tubes, where their functions were inadequate to produce a normal pregnancy. If a woman's fallopian tubes are blocked, the egg cannot travel to the uterus. IVF replaced tubal function by bringing the sperm into contact with the egg *in vitro* and the embryo is then transferred into the uterus (ET). One of the most common grounds for attempting IVF is extensive tubal diseases with unsuccessful tubal surgery resulting in poor tubal function. IVF is an option for some women to consider for their problem of tubal infertility.

Male infertility occurs when the number, movement or structure of the sperms is considered to be abnormal. Successful IVF has been achieved in men with sperm concentrations as low as 5 million per milliliter of semen where the normal count range from 20 to 100 million sperm per milliliter of semen. When sperm counts are significantly reduced, however, there is often a high incidence of sperm abnormalities that may impair the effectiveness of IVF. There is less chance of pregnancy when the sperm movements are less than 40 percent of those seen normally.[2]

Like Artificial Insemination, IVF separates conception from sexual intercourse. But it actually takes this separation one step further.[3] Doctors also apply this technique when there is no clear cause for the infertility.[2] Therefore, IVF can overcome most causes of infertility, including irreversibly blocked fallopian tubes, anti sperm antibodies, endometriosis, cervical problems, very low sperm counts etc.

Western philosophical perspectives

IVF procedures includes sperm collection and later its fertilization of the ovum in a petri dish. Subsequently, maturation of the embryo takes place in a culture medium in the laboratory. Like artificial insemination, a common objection raised against IVF in Western secular bioethics is that it separates sex from reproduction and that it is no more than a laboratory exercise. Here, a laboratory has been substituted for the natural environment. A new life should come to light through a loving embrace between the couple. This is the natural order or natural law. But by violating this natural order, IVF has become an unnatural act. However, there is no inherent problem in IVF and embryo transfer in cases where conception by the usual method is impossible.[4]

Critics sometimes treat all assisted reproductive interventions as dehumanizing. Those who reject human intervention in the process of human fertilization actually do so on the basis that what nature has decreed cannot be replaced. The implication of this dictum for infertile couple is that as they are unable to reproduce through sexual intercourse, they must accept their fate as a childless couple. They cannot have one 'created' outside the uterus. For this reason, American Protestant theologian Paul Ramsey condemns all reproductive interventions as dehumanizing. He, along with other critics of IVF, argues that human life is a gift, which is bestowed by God. So, why should man seek to create it artificially? [5]

A biologist and a renowned critic of IVF Leon Kass identify IVF with a form of dehumanization, strengthens his argument by adding: "My point is simply this: there are more and less human ways of bringing a child into the world. I am arguing that the laboratory production of human beings is no longer human procreation, that making babies in laboratories - even "perfect" babies - means a degradation of parenthood" [6]

The more crucial objection is that, depersonalizing human procreation is an offence to our humanity. IVF is further depersonalized by the involvement of a third party, the medical technologist. Karl Rahner opines that today's man is changing himself

consciously and deliberately which indicates that man is capable of self-creation. [8] In biomedicine, this 'change' may be equated with the power to intervene to accomplish that which was impossible previously. More specifically, change here is associated with the accomplishment of extra-uterine conception and gestating it in-utero. So finally, the techniques employed here will not affect the status of the child. [9] The opposite view suggests that man is a maker, selector and designer. They opine that laboratory reproduction is radically human compared to conception by ordinary human sexual intercourse. It is willed, chosen, purposed and controlled. Certainly these are amongst the traits that distinguish *homo sapiens* from others in the animal genus. [10]

The most forceful argument for IVF was proposed by bioethicist Helga Kuhse. She argued that IVF completes the separation between sex and reproduction that began with the availability of effective contraceptives which allowed sex without having children. Why then should critics raise questions of sexual ethics in connection with a technique which eliminates sex with the purpose of having children?[11]

Opponents of IVF express concern about how it might alter our conception of the family. What would be the status of the IVF child who becomes part of a family? IVF babies may later in life be disturbed by the knowledge of the special circumstances of their origin.

Difficulties undoubtedly will multiply if an IVF child is born out of marriage, with the aid of a male sperm donor or an egg donor. George J. Annas comments:

"Dependable birth control made sex without reproduction possible. Now medicine is closing the circle…by offering methods of reproduction without sex, including artificial insemination by donor (AID), in vitro fertilization (IVF), and surrogate embryo transfer(SET). As with birth control, artificial reproduction is defended as life-affirming and loving by its proponents, and denounced as unnatural by its detractors". [12]

Linda Kirkman was the gestational mother of a child conceived with her sister's egg. She used to say: "I always considered myself her aunt." Carol Chan donated eggs so that her sister Susie could bear and give birth to a child. Carol Chan's view: "I could never regard the twins as anything but my nephews" [13]

The above cases show how the technology of IVF using donated eggs dilutes the notion of parenthood by making possible peculiar relationships. Who is the mother here? The manner American society has answered the question depends on which woman is married to the baby's father. Birth certificates issued in certain US states, mentions the name of the ovum donor. The woman who carried the pregnancy and gave birth to the baby is not mentioned. Some birth certificates lists the mother as the woman who carried the baby and not the ovum donor. Legal motherhood is fixed by the relationship of the woman to the father.[14]

Therefore, we see a serious complicated situation determining the status of mother of the child conceived with a donor ovum. In this case we may ask the question: whether IVF is good or bad for family relationships. Similarly, consider the case of IVF using donated sperm. Could the donor base his claim to the child on society's traditional respect for biological ties?

From the feminist ethics standpoint, although the desire of infertile couples to access IVF are a reality and worthy of understanding, the present social arrangements and cultural values are deeply oppressive against women.[15]

Reproduction is a natural process and must be under the full control of the woman. But sometimes, IVF is viewed as a form of impersonal act when women's bodies are treated as laboratories to advance a doctor's

medical career. At the time of the birth of Louise Brown, England did not have a law requiring informed consent for experimental procedures. Dr. Steptoe's claim is that he had explained everything to the Browns. But did Lesley Brown understand why Steptoe performed a cesarean section instead of allowing her to deliver vaginally.[16] IVF sometimes makes women even more dependent on the male-dominated medical society. The history of the relationship between a male-dominated medical profession and women's reproductive functions is sometimes seen as one of mistreatment, manipulation and mutilation.[17] However, few feminists object to the technology concerned because it can help an infertile woman to have children. Their focus is on the exploitation of women as a byproduct of IVF. They support IVF if they are certain that women have a rational choice in it. Some feminists blame the societal obligations towards women to create pressure on them to have children at any cost because their lives are devalued without children. There is too much emphasis on motherhood. They argue against the social pressure that demeans the status of women and children as breeders and possessions respectively.[15]

It is a fact that sometimes women are exploited in society but that should not be a sufficient reason to ignore this new technology. Philosopher Christine Sist bristles all the implications that women who choose IVF have been manipulated. This argument itself is sexist because it implies that these women are unable to make free and rational choices.[18] Both are equal as human beings.[19] Women are capable of decision-making on their own right. Men have no right to manipulate them in their decision-making.

Conclusions

Western secular bioethics permits the use of donor sperms and eggs in IVF techniques. Islamic bioethics however protects the importance of lineage by disallowing it. Western secular bioethics allows lesbians' the right to undertake assisted reproductive medicine. Islamic bioethics only allows ART to couples in wedlock. The approach of Western secular bioethics may seem to be broad in one sense. The approach of Islamic bioethics preserves the welfare of the bigger society by its protection of the DNA of the family unit.

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THE LEGALITY OF TERMINATING PREGNANCY FROM THE MALAYSIAN AND ISLAMIC LAW PERSPECTIVES

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Abstract

Terminating Pregnancy or more commonly known as Abortion is one of the most controversial areas in medical law and ethics. The 'legality of terminating pregnancy' debate that has taken place is immensely wide-ranging, embracing numerous concepts, such as the beginning of human life, sanctity of life and the autonomy of the woman to choose on whether to reproduce and determine the fate of her unborn child. Judicial interventions in this area have taken into account not only the legal and ethical dilemmas, but religious viewpoints as well. Although terminating pregnancy has remained unlawful in Malaysia, there are several exceptions that have made it lawful. The Malaysian Penal Code (Revised 1997) (Act 574) through the exception under provision 312 has made terminating pregnancy lawful if the "continuance of the pregnancy would involve risk to the life of the pregnant woman, or injury to the mental or physical health". Religious viewpoints on the issue of terminating pregnancy have also been predominant amongst the Malaysian society. Islam regards life, including that of a fetus, as sacred. Although there are no direct verses in the Holy Qur'an that prohibit termination of pregnancy but there are many verses that prohibit taking away life without legitimate reasons. Thus, terminating pregnancy under Islamic law can be lawful if done for legitimate reasons. Nevertheless, there is diversity of opinions amongst the Muslim scholars on whether terminating pregnancy can be conducted within a stipulated time. This paper seeks to discuss the legality of terminating pregnancy from the Malaysian and Islamic Law perspectives.

Keywords: Terminating Pregnancy, Abortion, Causing Miscarriage; Unborn Child

"The greatest destroyer of peace is the crying of innocent unborn baby"
- Mother Theresa

Introduction

Since 1980, it is estimated worldwide that the number of cases on 'terminating pregnancy' is 1,520,915,800[1]. This staggering figure proved that terminating pregnancy is a common practice amongst the society all over the world. Consequently, the increased number of cases on terminating pregnancy annually has given rise to the need for the society to review its legal position. There have been complex religious, moral and political debates about abortion[2].

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The debates revolved around the right of a pregnant woman to reproduce and decide what to do with the baby, either to let it live or die; and the right of the unborn fetus to live and accorded legal personality. The after effect of the debates was society started to realize the need to look at terminating pregnancy from a new legal perspective. The challenge would be to find consensus within the society on the legality of terminating pregnancy. Currently, the position of terminating pregnancy in certain countries is very much influenced by the religion of the country, the inherent culture of the people and the extent of freedom of choice awarded to women.

Definition of Terminating Pregnancy

Termination of a pregnancy or Abortion has been understood as a premature expulsion of a fetus from the womb before the normal period of gestation is complete[3]. The World Health Organization defines terminating pregnancy as 'the expulsion or extraction of a fetus or embryo prior to twenty weeks of pregnancy or a fetus born weighing 500 gram or less from its mother'. Terminating pregnancy can be divided into two types. The first is spontaneous which occurs naturally without interference, in which case it is often called a miscarriage; while the second is induced; which can either be caused by medical or surgical procedures[4].

Abortion from the Ethical and Religious Perspectives

The common framework of medical ethics is based on four main principles; mainly respect for autonomy, beneficence, non-maleficence and justice. The four principles balance the right of the patient to decide and the responsibility of a medical practitioner to always put the interest of his patient's life and health first. The Hippocratic Oath, forbids the termination of pregnancy. The Oath prohibits physician from giving a pregnant woman an abortive remedy as the fetus is considered as a living being and therefore, it is ethically unacceptable to abort it[5]. The International Medical Code of Ethics requires medical practitioners to respect human life. Hence, if a fetus is considered as a human life since conception, terminating pregnancy for non-therapeutic purposes shall not be permissible among medical practitioners.

Unfortunately, the issue when life begins remains unsettled. Consequently, the status of an embryo and the fetus differ based on the perception of the society. Some ethicists believe that an embryo is a person from the moment of conception. Some are of the view that its potential to become a person gives the embryo an important moral status, sometimes described as the need to treat it with a degree of 'respect'[6]. Nevertheless, there are some who believe that embryos are 'special', but would fall short of according them the same status of 'a human being'. An embryo is clearly a member of our species, but this does not necessarily require us to treat a four-cell-embryo, which cannot be seen with the naked eye, as if it had the same rights and entitlements as a person[6]. The above perceptions on fetus and embryo to certain extent cause difficulty to determine the moral, ethical and legal position of abortion.

John Finnis, who has been against the termination of pregnancy, argued that conception creates a human being; thus, the fetus is entitled to the right to live[7]. On the other hand, Mary Ann Warren (1973), contended that while the fetus may be human, it is not yet a person, and that its potential to become a person cannot justify giving it primacy over the rights of an actual person, namely the pregnant woman. She added that since a fetus lacks the traits of a human being that is, reasoning, consciousness, self-motivated activity, capacity to communicate and presence of self-concept and awareness, it should not be treated as a person. Thus, it could be terminated at any time and abortion can be allowed at any stage of pregnancy for whatever reasons as the woman deems fit. Phillip Abbot (1978) disagreed with Warren's view and pointed out that this sort of test for 'personhood' would exclude not only fetuses, but also some seriously disabled children and adults[8].

The legality of terminating pregnancy has also been addressed by religious opinions. Emily Jackson has described comprehensively the relationship between religion and the practice of medicine. She mentioned that in the past, the belief that illness has a spiritual origin was common.

As a result, people sought cures through prayer, rather than from the medical profession. Emily quoted the writing of David Callahan (1970) that suggested that religious perspectives might be a particularly useful resource for solving issues such as terminating pregnancy. He added that the fact that religion tends to emphasize between right and wrong and respect towards God's creation would determine the legality of terminating pregnancy. If a fetus is to be treated as God's creation that must be respected and protected, then terminating pregnancy shall be deemed to be immoral and illegal[6]. The legality of terminating pregnancy in some religions such as Islam and Christian Catholic are the same. The Catholic rejects terminating pregnancy on the ground that it is a termination of an innocent human life awarded by God to human being[9]. On the other hand, the Protestants are more liberal. They believe that the mother of the fetus should be given the right to decide whether or not she wants to continue with the pregnancy[10]. Terminating pregnancy is also prohibited amongst the Buddhists. The rationale is that one should not harm any life, as life is a sacred sanctity[11]. Judaism allows terminating pregnancy only when the life of the mother is at stake[12]. The Islamic perspective on abortion will be discussed at the later part of this article.

The Legality of Terminating Pregnancy from the Malaysian Law Perspective

(a) The Status Quo – General Principle of Law

Historically, the law on terminating pregnancy in Malaysia originated from England. This is due to the fact that Malaysia was once under the colonization of England. Under the English law, intentionally terminating pregnancy which is equivalent to induced miscarriage is an offence. Prior to 1803, the English Common Law permitted abortion provided it was carried out before "quickening", that is, the point reached at about 20 - 24 weeks when it was believed the soul entered the body. Abortions performed after "quickening" were an offence under British Common Law, but there were no fixed penalties and the woman having the abortion was not necessarily held responsible. After 1803, the laws pertaining to abortion radically altered and termination became a criminal offence from the time of conception. In 1861, Parliament passed the Offences against the Persons Act. Section 58 made abortion a criminal offence, punishable by imprisonment from 3 years to life even when performed for medical reasons. No further legal changes occurred in England until 1929. In 1929, the Infant Life Preservation Act amended the law stating that it would no longer be regarded as a felony if abortion were carried out in good faith for the sole purpose of preserving the life of the mother. The Act made it illegal to kill a child "capable of being born live". The Act further stated 28 weeks as the age at which a fetus must be presumed to be viable. Thus, the Act vested doctors with the power to decide when terminating pregnancy is legal in certain cases, that is, when the life of the mother is threatened.

In 1936, the Abortion Law Reform Association was formed as it was felt that the abortion legislation was unsatisfactory. The Abortion Law Reform Association recommend that the law should be made clear, as the 1861 Act still on the statute books deemed abortion illegal under all circumstances, while the 1929 Act stated that abortion was legal when it was performed by a medical practitioner who was "satisfied that the continuance of the pregnancy was liable to endanger the health of the expectant mother". By 1966, public opinion relating to abortion gathered momentum as it was felt by many people that there was a need for clarification and reform on abortion law. It was the feeling of society that legalising the operation for medical professionals was the only way in which the tragic social problems of illegal abortions could be prevented. The Abortion

Act of 1967 came into effect on the 27 April 1968 and permits termination of pregnancy by a registered practitioner subject to certain conditions. The 1967 Act did not invalidate 1861 and 1929 Act but instead, created statutory defences to the crimes of procuring a miscarriage and destroying a viable fetus. Section 1[1] of the 1967 Act provides that an abortion may be lawful if the pregnancy is terminated by a registered medical practitioner if two registered medical practitioners are of the opinion, formed in good faith:

(a) That the pregnancy has not exceeded its twenty fourth week and that the continuation of pregnancy creates risk, greater than if the pregnancy were terminated, of injury to the physical and mental health of the pregnant woman or any existing children of her family; or
(b) That termination is necessary to prevent grave permanent injury to the physical and mental health of the pregnant woman; or
(c) That the continuance of pregnancy would involve risk to the life to the pregnant woman, greater than if the pregnancy were terminated; or
(d) That there is a substantial risk that if the child were born it would suffer from such physical and mental abnormalities as to be seriously handicapped.

The Malaysian Medical Council regards the members' act of inducing miscarriage without valid reason as a serious misconduct. Consequently, disciplinary action can be taken against such member. In addition to disciplinary action, criminal action can also be taken against any medical practitioners who are involved in performing terminating pregnancy procedures. The offender who terminates pregnancy can either be the woman who is with child or the person who causes or assists her terminate her pregnancy. However, unlike England, Malaysia does not have a specific Act by itself addressing issues on terminating pregnancy. However, sections 312 to 316 of the Penal Code deals with the issue of terminating pregnancy or abortion although the term terminating pregnancy or abortion is not used but replaced with causing miscarriage. Prior to the Penal Code (Amendment) Act 1989 (Act 727), terminating pregnancy can only be conducted if there is a threat to the mother's life. The Penal Code (Amendment) Act 1989 had made several amendments, for example, by inserting an exception in section 312 which allows terminating pregnancy to be conducted if "such practitioner is of the opinion, formed in good faith, that the continuance of the pregnancy would involve risk to the life of the pregnant woman or injury to the mental or physical health of the pregnant woman than if the pregnancy were terminated." The amendments also made changes to the length of imprisonment for section 314. The Penal Code (Revised 1997)(Act 574) had incorporated the amendments made by the 1989 Act[4]. There are five main provisions addressing terminating pregnancy in the Penal Code. The relevant sections are 312, 313, 314, 315 and 316.Section 312 makes terminating pregnancy a criminal offence in Malaysia. The law regarding terminating pregnancy in Malaysia has gone through several amendments. The amendment in 1989 clarified and extended the circumstances in which terminating pregnancies are legally permitted. Consequently, terminating pregnancy becomes a restrictive permissible act in Malaysia.

Specifically, the prohibition on terminating pregnancy can be found in section 312. The section states that "whoever voluntarily causes a woman with child to miscarry shall be punished with imprisonment for a term which may extend to three years, or with fine, or with both; and if the woman is quick with child, shall be punished with imprisonment for a term which may extend to seven years, and shall also be liable to fine." This section makes terminating pregnancy an offence. The punishment for causing miscarriage to a woman with child

depends on the stage of pregnancy the woman is at the time of the miscarriage is caused. The greater the stage of pregnancy, the more severe the punishment will be.

In addition to providing the prohibition of terminating pregnancy, section 312 provides exceptions to the prohibition. The section allows the termination to be conducted if the offender is a medical practitioner registered under the Medical Act 1971 who is of the opinion that the continuance of the pregnancy would involve risk to the life of the pregnant woman or injury to the mental or physical health of the pregnant woman than if the pregnancy were terminated." It is interesting to note that the medical practitioner who treats the woman may form his own opinion on the need for the termination without referring to any psychiatric assessment. The only condition provided by the section is that the opinion must be formed in good faith; that is by virtue of section 52 means acting with due care and attention. Therefore, terminating pregnancy will not be an offence under the above exception if the condition that the medical officer believed that his act might save the life of the pregnant woman or her physical or mental health is satisfied. This precludes causing miscarriage to save a rape victim from an unwanted pregnancy. Terminating pregnancy is only allowed if the rape victim suffered severe mental depression because of her unwanted pregnancy.

Section 312 is applicable if the termination is performed with the consent of the woman. If the act of causing miscarriage is non-consensual, then section 313 shall be applicable. The fact that the miscarriage was caused without the consent of the woman will be the aggravating factor to add severity to the punishment. Consequently, the punishment provided in section 313 is imprisonment, which may extend to twenty years, and shall also be liable to fine. If death is caused to the woman in the course of causing miscarriage to the woman, by virtue of section 314 the accused shall also be liable for imprisonment, which may extend to twenty years. Nevertheless, if the act is done with the consent of the woman and death is caused, the punishment is only ten years imprisonment. Here, the consent of the woman is the mitigating factor that will be reduced the liability of the accused. Section 314 provides that the accused need not know that the act is likely to cause death. The explanation shows that the threshold for liability is lower than for culpable homicide or murder. In another perspective, it would seem to be unjust to impose such liability on the doctor without taking into consideration the element of foreseeability. However, it is understandable for the law to be stricter towards doctors as they are supposed to ensure the safety of the patient not vice versa.

However, a medical practitioner who causes miscarriage without the consent of the woman may also rely on the defence provided in section 92 of the Penal Code. The gist of section 92 is that the act must be done for the benefit of that person to whom the harm is caused. This section will not be applicable if the act is done for the purpose of saving the mother's life. The *mens rea* of section 315 is the accused intended to prevent the birth of the child or intended to cause death to the child immediately after it was borne. Only part of the action deals with terminating pregnancy. The remaining half deals with causing death to a newborn baby immediately after its birth. In this situation, if the offender is the mother of the baby, she can also be charged with section 309A for infanticide. If death is caused long after the baby is borne the offender can also be guilty of murder under section 302 of the Penal Code. If the accused is trying to cause death to a woman who is quick with child, and consequently causing death to the unborn baby inside the womb, the accused may be guilty under section 316. The punishment provided under this section is imprisonment for a term, which may extend to ten years, and shall also be liable to fine.

The Legality of Terminating Pregnancy from the Islamic Law Perspective

Islam prohibits the killing of a human being, but does not explicitly provide for abortion. In verse 151 of Surah *Al-An'am* , Allah s.w.t states to the effect: "Come, I will recite what your Lord has prohibited to you. [He commands] that you not associate anything with him, and to parents, good treatment, and do not kill your children out of poverty……and do not kill the soul which Allah has forbidden [to be killed] except by [legal] right" (The Holy Qur'an, Surah Al-An'am, 6:151). If this verse is to be interpreted literally, it means the killing of a human being is prohibited. If a fetus is construed as a soul or a human being, this will also means terminating pregnancy is prohibited in Islam. According to Al-Qurtubi (1975) and Ibn Qudama (2010), generally terminating pregnancies are prohibited under the Islamic Law. Muslims believe that Allah s.w.t. would be angry and punished any person who aborts the baby that has bestowed upon him by Allah s.w.t. Terminating Pregnancy or Abortion in Islam is known as *al-Ijhadh*. Literally, *ijhadh* means to throw away something. Legally, *ijhadh* means the discharge of the fetus from the womb before it develops[13]. The term can also interchangeably be used with *al-inzal, al-imlas, al-ikhraj and al-isqat* (Sa'ady Abu Jib, 1988). Ibn Abidin defines abortion as the act of removing a fetus from womb before it completes its gestation period. Maudarbux Belall (2014) defines abortion as causing the discharge of a fetus not fully formed or causing the discharge of a fully formed fetus before the customary period.

(a) The Issue of the Sanctity of Life

In Islam, a fetus comes into being when the semen of a man and a woman come together and fertilization takes place. (The Holy Qur'an, Surah al-Tariq, 86:7). The protection of the life of a child starts even before it is born (Mansur, A.I.M, 2011). Once a child is conceived, it has its own right and status. This protection originates from the principle of *dhimmah*. According to Abdallah (1978), *dhimmah* means a quality by which a person becomes fit for what he is entitled to as well as what he is subjected to. Hence, the protection of a fetus starts from its conception. Human beings are seen as the crown of God's creation. They are endowed with reason, choice and responsibilities, including stewardship over their own health, the environment and all other creatures. While illness is seen as a trial or even as a cleansing ordeal, it is not a curse or punishment. Patients are obliged to seek treatment and to avoid fatalism[14]. Each life has value even if it is of poor quality. The taking of life is regarded as a grave sin. In *Surah al-Maidah*, verse 32, Allah s.w.t states to the effect: "Whosoever killed a human being…it shall be as if he had killed all humankinds, and whosoever the life one, it shall be as if he had saved the life all humankind" (The Holy Qur'an, *Surah al-Maidah*, 5:32). The Oath of Muslim Doctors has an undertaking 'to protect human life in all stages and under all circumstances, doing [one's] utmost to rescue it from death, pain and anxiety. There are several issues that may be relevant pertaining to terminating pregnancy in Islam. The Holy Qur'an has provided accurate details concerning human embryology that underlies the Islamic appreciation of the ethical and moral status of the embryo and the fetus before birth. In Islam, all human life is regarded as sacred from conception to natural death. There are no direct verses in the Holy Quran that prohibit termination of pregnancy or abortion, but there are many verses that prohibit taking away life without legitimate reasons and how sacred is the life of a human being. In *Surah al-Isra'* verse 70, Allah s.w.t states to the effect 'and verily we have honoured the children of Adam' (The Holy Qur'an, *Surah al-Isra',* 17: 70).

(b) Juristic Opinion on Terminating Pregnancy

Since the early history of Islam, Muslims were aware of moral and legal issues related to

abortion or termination of pregnancy. In the Islamic tradition, *isqaat al-janiin* (expulsion of the fetus) and *al-Ijhaad* (abortion) are terms used to address terminating pregnancy and relevant moral and legal concerns. The term *isqaat al-janiin* and *ijhaad* are closely related, in such a way that each of these words denote miscarriage and willful determination of a non-viable fetus. Muslim jurists' understanding of terminating pregnancy is derived from its literal meaning, which is not far from the conventional understanding. As stated by the Muslim jurist Ibn 'Abidin, abortion means: *"inzaal al janiin qabl an yastakmila mudat al-haml"* or to abort the fetus before its due period of pregnancy is completed. The focal point of this definition is that, terminating pregnancy is the intent of expelling a fertilized zygote, embryo or nonviable fetus from the womb[15]. In Islam, terminating pregnancy or abortion is divided into two categories: unintended abortion *(al-ijhaad al-'afawiyi)* and intended abortion *(al-ijhaad al-iraadiyi)*. Unintended abortion includes accidents, falling of the pregnant woman, an ailment of the mother, or due to an ailment, or the death of the fetus. Another type of abortion is to terminate premature pregnancy due to certain reasons *(al-ijhaad al-'ilajiyi)*. In this case because the mother is unhealthy, therefore abortion is conducted to cure her or to save her life. This is done in cases where the health of pregnant mother deteriorates, or perhaps the mother is healthy, but the fetus dies in the womb, thus, abortion is sought to preserve the mother's health, and save her life[16]. The Majority of Muslim scholars assert that terminating pregnancy after the introduction of the soul, or 120 days after conception, is forbidden. However, there are differences of opinion amongst jurists on whether the termination can take place during the first 120 days. The most liberal position is by the Hanafi jurists who argued that since the fetus does not have a soul it is not considered alive. Terminating pregnancy can be procured at this stage with the permission from both the husband and wife[17,18]. The majority of Maliki jurists took a stricter view that terminating pregnancy is not allowed even before the period of forty days. The Hanbali and Shafii jurists, on the other hand, argued terminating pregnancy is legally permissible only within the first forty days of pregnancy. The rationale is that the implementation of the zygote into the mother's uterus has not occurred before forty days. Once implementation occurs, they argued, although the fetus is not considered alive it is still "a part" of the mother. The majority position of the jurists opined that abortion is forbidden after 120 days, unless it is to save the mother.

Various Islamic institutions have taken different positions on the issue. The Islamic Research Academy affiliated with al-Azhar University Cairo has recently stated that terminating pregnancy is illegal at all times and any Muslim woman who terminates her pregnancy is guilty of a crime. The Islamic World League of Saudi Arabia have issued a fatwa stating that terminating pregnancy is legal if the fetus is grossly malformed or has an untreatable chronic disease and if termination takes place before 120 days. The Legal Opinion Authority at Kuwait Ministry of Endowment considers that if continued pregnancy poses a threat to the mother, preservation of her life should take priority, because she is the pillar for the family and has many obligations to fulfill compared to the fetus. In cases of pregnancy because of rape, Dr. Yusuf Qardawi, although he generally takes the position that abortion is forbidden at all times, issued a fatwa granting rape victims the right to terminate pregnancy before 120 days.

Conclusions

The issue of terminating pregnancy is not merely a legal issue as it is also a moral, ethical and religious issue that needs to be resolved. However, the resolution on the issue of terminating pregnancy remains elusive, as it is not possible to combine and compromise the issue of morality, ethical and religion. Consequently, law on terminating pregnancy differs from one country to another, depending on the religion, customs and morality of the people of the country. Society and law, are thus, embroiled in this debate but the intervention of law in this area is considered highly necessary to create a balance between law, ethics and morality.

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