

Invited paper

An Islamic perspective on human genetic and reproductive technologies

H. Hathout¹

التكنولوجيات الإنجابية والوراثية من منظور إسلامي

حسان محمود حتوت

الخلاصة: يُعدُّ التقدُّم الحديث الذي طرأ على التكنولوجيات الوراثية والإنجابية من التطوُّرات الحديثة التي قد تخل بالتوازن بين العناصر المادية والروحية للحياة. وتطرح هذه الورقة البحثية منظوراً إسلامياً تجاه بعض هذه التطوُّرات بما فيها الإجهاض، والإخصاب في المختبرات (طفل الأنبوب)، والهندسة الوراثية، والاستنساخ، وبحوث الخلايا الجذعية.

ABSTRACT Modern advances in human genetic and reproductive technologies are among the recent developments disturbing the balance between the spiritual and the material components of life. This paper gives an Islamic perspective on some of these advances, including abortion, *in vitro* fertilization, genetic engineering, cloning and stem cell research.

Perspective islamique de la génétique humaine et des technologies de la reproduction

RÉSUMÉ Les progrès modernes réalisés dans le domaine de la génétique humaine et des technologies de la reproduction font partie des développements récents qui viennent perturber l'équilibre entre les composantes spirituelle et matérielle de l'existence. Cet article présente une perspective islamique concernant certains de ces développements, dont l'avortement, la fécondation *in vitro*, le génie génétique, le clonage et la recherche sur les cellules souches.

¹Member of the Board of Trustees, Islamic Organization for Medical Sciences, Kuwait (Correspondence to: sarramo@aol.com).

This paper was presented at the International Seminar on "Human Genetic and Reproductive Technologies: Comparing Religious and Secular Perspectives", held in Cairo, Egypt, from 6–9 February 2006.

Introduction

Although we all depend on the human mind in finding our way in this world, it is obvious that the religious side operates under a primary belief in the existence of God, His infinity in all His attributes, and His concern with all that happens in the universe He created. The infinity of God might be beyond our comprehension, but this is only natural because, being finite ourselves, we cannot grasp the infinite. This is not just religious jargon, because we teach infinity in our mathematics classes and even give it a special sign.

Muslims believe that Islam is the continuum and the culmination of, not an alternative to, the sister Abrahamic faiths of Judaism and Christianity. In the Quran, they are links of the one chain of God's message to humanity. The Quran, which Muslims believe is God's very word, says: *The same religion He enjoined on you as the one He enjoined on Noah, and this We reveal unto you and that We enjoined upon Abraham, Moses and Jesus, that you should uphold the faith and break-not your unity therein* (42:13). This commonality we respect, although we are aware that on further comparison it is natural to find differences and distinct schools of thought between the faiths, and even within one faith.

To present Islam in a few brief words, it could be likened to a three-story building. The foundation is belief in God and heeding Him in all aspects of life. The first floor is that of worship, including five ritual prayers every day, fasting the days of the lunar month of Ramadan every year, giving *zakat* tax (a percentage of saved income) to the poor every year, and pilgrimage to the mosque of Abraham in Mecca once in your life if you can. The second floor deals with the world, including fellow human beings, and life in general. It includes dos and

don'ts and delineates good and bad. This code of human behaviour is the same in all the Abrahamic faiths.

The third floor is the constitutional and legal one that compliments and protects the other two. The floors are interconnected and cannot be separated from one another. There is no church or clergy in Islam and so the question of separation of church and state does not arise.

Planet Earth is made primarily of atoms following atomic laws. Atoms combine to form molecules that also interact and combine with one another following chemical laws, giving molecules of variable complexity. Complexity progresses until we reach the molecule which can split into two halves, each replenishing itself, utilizing the surrounding molecules. At this point, life has been born and chemistry takes us to biology. Biology has led to the appearance of so many forms of living beings, either existing on Earth at the same time or appearing consecutively over successive eras. Whether this happens fortuitously or to design of an all-encompassing Planner has been a subject of debate until this very day. The believers call this Planner God in English; He has other names in other languages.

Because physical life on Earth is derived from the Earth itself, individual life must be temporary, otherwise Earth would be exhausted making new lives. In addition, those new lives would not have enough Earth for life and sustenance. And so death is the other face of life.

For individual life to be replenished, there must therefore be a mechanism for replacing the deceased. This is the function of what we call reproduction. It occurs in nature in so many forms. The simplest perhaps is the fission of a living cell into two—asexual reproduction. In more complex systems, sexuality appears but with

both male and female gonads existing in the same body (hermaphrodite). In the next level, the sexes differentiate and the sex cells are deposited in proximity and meet outside the body. Higher still, the cloacal openings of male and female come in contact and sperm goes into the female to fertilize an ovum. This is encased in a calcium shell with a certain amount of nutrient and laid outside the body until the chick can peck its way into the world. In higher forms, the fetus has to remain inside its mother's uterus for a longer period until born. In the human, it remains inside for about 280 days, and when born, it is far from ready and must be cared for for an even longer period.

Such is biology, but it is obvious that although man shares it with the animal kingdom, there is more to human beings than their biology. The quest for knowledge, the concepts of good and evil, the values he clings to even against biological temptation, the concept of right and wrong, and the concept of accountability sooner or later are human ingredients that are beyond the terrestrial scope. Humans are biology plus something else that is unique to the species. We are spiritual beings even though housed in a biological container. This spiritual, non-earthly characteristic is what we believe to be the godly presence in a human. It is also the nobility of humanity: having endowed us with freedom, God will hold us responsible and even if we evade justice in this world, it will await us in the world to come. This might not appear to be scientific but science is still an infant, growing day by day but far from complete, and it cannot negate what it does not know.

So how is life to be managed in accordance with the Islamic way? The word "way" in religious terminology is *sharia*. Caution is advised, however, against trying to read the *sharia* as what many Muslim people may be doing, because both lack of faith and

incorrect knowledge have resulted in certain behaviours by Muslims that run contrary to the teachings of Islam. The same can probably be said concerning other religions.

There are five goals of the *sharia*: the protection and preservation of life, mind, religion, right of ownership and procreation (family). Each is serviced by branching groups and subgroups, covering the whole life. The sources of the *sharia* are the Quran (God's very word), the religious teachings of Prophet Muhammad ﷺ, the process of analogy and reasoning, *ijtihad*, and the unanimous opinion of recognized qualified scholars in a given time and place. Other juridical rules are:

- the choice of the lesser of two harms if both cannot be avoided;
 - necessities overrule prohibitions;
 - avoiding harm takes priority over bringing good;
 - public interest overrules private interest;
 - rulings of previous God-sent religions;
 - judgements of the Companions of the Prophet ﷺ;
 - doing no harm;
- harm is not to be repelled with harm; where the welfare of the people resides, there resides the statute of God (this is considered the rule of all rules in matters on which other invocations are silent);
- human needs are divided into essential, necessary, and complementary: they are assigned relative priority (including budgetary priority) in this order;
 - the principle of precautionary preventive approach (*sadd al-thara'i*).

Following these guiding principles, Islamic jurisprudence evolved and survived over the ages. Human issues are categorized into essentials, necessities and complementaries and priorities should be allocated

in that order. Various schools of thought, called *mathahib*, have been formulated, and the door is always open to new schools of thought. The differences between these *mathahib* are no cause of enmity among their followers and are even considered a manifestation of God's mercy.

It was against this background that Islamic Organization for Medical Sciences looked at some biological issues in successive conferences that brought together scientists and religious scholars.

Human genetic and reproductive technologies

Abortion

This is prohibited in view of the sanctity of human life, whose beginning is characterized by:

- it is a clear event;
- growth by cell division;
- unless interrupted, it leads to a full human being; and
- it has the genome of humanity as well as the specific genome of a specific individual.

A fertilized ovum exhibits these features except that it cannot produce a human being unless implanted into the uterus, and so implantation was taken to herald the sanctity of human life. The embryo acquires certain rights. Aborting it is unlawful and legally punishable although the punishment is lower if it is carried out before 120 days, which is the time the spirit enters according to Prophet Muhammad ﷺ. When pregnancy poses a serious threat to the life of the mother or when the fetus is grossly malformed, abortion is allowed.

The question of abortion is a multifaceted one, and this is illustrated in the following story, which reveals a largely unseen

dimension of abortion. A couple requested help to reconcile them with a rebellious son. When he was reminded of the Quranic linking of worshipping God with kindness to parents, the son said, "It doesn't apply here, doctor. When they married, they decided to have two children and they aborted the four that followed my elder sister and myself. Had I been number three, they would have disposed of me as well."

In vitro fertilization

In vitro fertilization is allowed between husband and wife during the span of their marriage. Marriage entails two individuals only (husband and wife), therefore donated sperm or ova or the use of a surrogate uterus is not accepted. *In vitro* fertilization is almost natural except for a detour outside the body where ovum and sperm can evade an obstructing barrier. In countries where the technique leads to surplus fertilized ova after a successful pregnancy, it is still debated whether to throw them away or to keep them in cold storage for long periods, but eventually they will acquire abnormalities or will perish.

Genetic engineering

Genetic engineering seems to be a more serious development since it transgresses the distinctive genetic uniqueness of living species. There is a reference in the Quran where Satan tells God almighty that he would go after those human beings in their earthly abode and tempt them to do evil, including tampering with God's creation. The principle is clearly rejected by Islam but an exception is made when used to produce medicines or other material to alleviate suffering and illness. Using it to tamper with human individuality and eligibility for personal responsibility is forbidden. Apart from combating illness, it should not be allowed.

Cloning

Cloning is indeed a most serious issue as it is a reversion to the most primitive form, asexual reproduction. It conflicts with the Quranic aphorism: *God created consorts for you from amongst you and through them He gave you children and grandchildren. Do they then believe in vain things and deny the blessing of God?* (16:72). The bleak prospects of cloning are already manifested by the very high rate of fetal wastage before a clone is born. In the human, we know that some genes are pathological but are compensated for and overpowered by their alleles, i.e. corresponding genes derived from the mating partner. This correction is lacking in asexual reproduction. Moreover, the family and other social relations would be shockingly disturbed if cloning becomes widespread. The process may be utilized for scientific research but never for reproduction.

Stem cell research

A fertilized egg undergoes successive cell divisions in order to form the human body. In the earliest cycles, each cell can begin all over again as a single cell to form an entire organism. These are called "totipotent" cells. In later divisions, the cells cannot do this but can produce complete organs or tissues under special treatment and are, therefore, called "multipotent" or stem cells. Later still, the cells cannot do this: they are already committed to forming their ultimate tissue.

Stem cells can be procured from fertilized eggs in storage following *in vitro* fertilization, but also are found in the placenta, umbilical cord and the blood in the normal human circulatory system. Up to now, the most readily available source seems to be the surplus ova left over after *in vitro* fertilization. The use of these ova, however, has stirred a hot debate on the assumption that

it is utilizing a human being (although still at the stage of an ovum) for the interests of somebody else. One side of the debate raises the dictum of the "sanctity of human life". The hawks enthusiastic for war are often surprisingly adamant in their relentless defence of life in a surplus ovum in storage. From an Islamic point of view, we have already alluded to the inviolability of human life from the point of implantation onwards. A fertilized ovum in storage does not, however, possess the same rights as a fetus and it may be used if the purpose is to protect and save human life. Our argument rests on the following points:

- If kept in storage, the fertilized ovum will acquire genetic anomalies and will, sooner or later, die.
- It is not part of the feto-maternal unit of a pregnancy.
- A somatic cell, such as a skin cell, can be made into an embryo through the process of cloning and yet, nobody ever claimed sanctity for skin cells.
- According to Islamic teaching, a fertilized egg, not yet residing in the mother's uterus for 120 days, does not have the spirit instilled into it.
- If society has the right to conscript people to do military service with the risk of death or injury, it might as well have the right to conscript a number of ova.

Utilizing the juridical rule of "necessities overrule prohibitions", 1 does not equal 1000 but 1/1 equals 1000/1000. To consider the numerator and ignore the denominator would be grossly misleading. One always has to look to both sides of the coin. It is somewhat upsetting to see the issue relegated to the realm of politics. On so many occasions, politics has proved inconsistent, shifting between idealism and utilitarianism.

Thoughts and afterthoughts

From a Muslim point of view, it seems that tackling the issues we have been discussing would be too fragmentary and too reductionist if isolated from the radical question. To Muslims, and in all probability to members of the Abrahamic faiths in general, mankind has a role in creation distinct from other creatures. The human race, in our belief, is assigned the task of being God's vicegerent on Earth. This is despite the fact that we have an earthly component dragging us down and a godly (spiritual) component lifting us up. Human beings are endowed with a built-in autonomy that enables them to make choices of their own free will. They are also endowed with the concept of good and evil and because they are given freedom of choice (within limitations), are inevitably accountable. To pass this test, God provided guidance carried by human messengers (prophets) as recurring reminders throughout human history. Some eternal milestones concerning good and evil have been delineated by God, otherwise the incomplete and suggestible human mind might miss its way and be seriously misled.

It is not surprising, therefore, that a secular person might often think differently and reach different conclusions. In our world, people do not conform to a single monolithic pattern in their way of thinking or in their pattern of belief or disbelief. This is a fact of life and we should accept it. There is a difference between loyalty to one's own beliefs and displaying them on the one hand, and fighting over them on the other. Furthermore, all of us being human, and with the accumulated acumen humanity has acquired, we have so much in common whatever ideology we profess.

One of the trends humanity has been pursuing lately is a disturbed balance between the spiritual and the material components

in life, with an obvious disequilibrium between idealism and utilitarianism in favour of the second. Whereas we raise our children warning them against selfishness, later, in adult life, we practice selfishness under the names of patriotism, racism, elitism, etc.

The voices raised in praise of humanity and human life are without doubt eclipsed by the fact that the industry of death has become the most profitable industry in our present-day world as evidenced by a comparison between the budgets for peaceful endeavours and those for military ones.

Until very recently, medical science was regarded as a unidirectional human endeavour espousing only healing and mercy to rich and poor, to friend and foe. When the first atomic bomb was dropped over Hiroshima, Oppenheimer (the father of the atomic bomb) said, "Today, physics has fallen into sin." We thought that medical science was immune to that, until sobering news came out about bacteriological and toxicological warfare. Until the 20th century, the idea of war as an inevitable evil was tolerated on the assumption that war was confined to the fighting forces only. This was superseded after the Spanish Civil War in the 1930s and through the Second World War and subsequent wars, including those in Korea and Viet Nam. Not only human life was involved, but also other living beings: animals, plant life, and even the soil.

Scientific progress aimed at the elimination of human suffering and disease is certainly a ray of hope, but even this bright picture generates some worries. The new achievements will entail high costs for treatment. Patent rights have already become an issue and it seems that medical scientists are moving from the sanctuaries of science to the vagaries of the market place. Monopoly is a reasonable idea but there should be limits. Expensive treatment should not be the

privilege of the rich, and the question of equity should not be outside the law.

A feature of modern times is “limited resources”. If we all subscribed to the concept of a large, single human family, it should follow that in dispensing resources, medications that would save the lives of the many should be given priority over those helping the few, even if such medications lag behind as profit-makers for the industry. If humanity could go beyond the idea that profits are

measured in terms of dollars, perhaps that would be a shift in the right direction.

People of conscience, especially those of faith, should join forces to create a counter wave against this rampant, selfish, materialistic, utilitarian philosophy in favour of a human attitude guided by compassion and love and human togetherness. Humanity should rise above the concept of “you and I” and embrace the concept of “we”!

Report on Forum 9 meeting, 2005

Poverty, equity and health research, summarizes the oral and poster presentations and group discussions that took place at Forum 9 in Mumbai, India, from 12 to 16 September 2005. Several key messages emerge in the report, including growing recognition that the “neglected diseases”, which have been of concern in recent years, are but an aspect of a wider picture involving “neglected people”, and the problems of “neglected health systems” that cannot deliver effective interventions.

The report stresses that reducing inequities in health requires political will, increased resources and enhanced effort to organize and deliver health products and services effectively. It also needs research—whether *biomedical research* to create the needed drugs, vaccines, diagnostics and medical appliances; *health policy and systems research* to understand and improve the organization and functioning of the health sector; *social sciences and behavioural research* to increase understanding of the factors that determine health and affect health-seeking behaviour; or *operational research* to examine how effectively systems and interventions are working on the ground and how they can be improved.

Poverty, equity and health research. Report on Forum 9 is available from Global Forum for Health Research, 1–5 route des Morillons, PO Box 2100, 1211 Geneva 2, Switzerland. Telephone: (41) 22 791 4260; Fax: (41) 22 791 4394. It is also available free online from: <http://www.globalforumhealth.org>.