

# Time to Be Born at Present Days in Terms of Medically Assisted Procreation

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**Abstract:** Having children is not only the main goal of human life, but also the base for continuation the species of *Homo sapiens*. Already the Bible has encouraged the people for procreation, at that time obviously in natural way. At the present, methods of medically assisted procreation cross all hitherto existing barriers and lead to self-creation of a man. Some methods, e.g. intracytoplasmatic sperm injection carries the risk for next generation and can begin real human cultivation. The question of responsibility has to arrive, although the birth of child resulting from assisted procreation methods is an undoubtable triumph of the medicine.

**Zusammenfassung:** Überlegungen zu den ethischen und ärztlichen Aspekten bei medizinisch unterstützter Reproduktion. Kinder sind nicht nur ein Hauptsinn menschlichen Lebens, sondern auch die Voraussetzung für den Fortbestand der Species *Homo Sapiens*. Schon die Bibel hat die Menschen zur Fortpflanzung ermuntert, aber zu jener Zeit offenkundig auf natürlichem Wege. Gegenwärtig überschreiten die Methoden medizinisch unterstützter Zeugung alle Grenzen und tendieren in Richtung auf eine Selbstschöpfung des Menschen. Einige Methoden, wie die intrazytoplasmatische Spermieninjektion bergen Risiken für die nächste Generation und machen die Zeugung zu einem reinen Menschenwerk. Die Frage der Verantwortbarkeit muß gestellt werden, wenn auch die Geburt eines Kindes nach medizinisch unterstützter Zeugung unzweifelhaft einen Triumph der medizinischen Forschung darstellt.

“Be fruitful, multiply, file  
the earth and conquer it”

Genesis I,28

## Introduction

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people for procreation and to make in this way the Earth submitted to them, but at that time obviously only natural procreation was taken into consideration. At the present, methods of medically assisted procreation, still more frequently applied, cross all hitherto existing barriers, towards programmed self-creation of a Man.

### Human Conception

Human conception is due to the union of two reproductive cells: egg cell originated from mother, and spermatocyte originated from father. What is preceding by enormous, included few millions of cells, selection. Psycho-emotional barriers begin this selection already on the step of sexual partners choosing, and pass later purely biological selection in the organism of mother-to-be<sup>12</sup>.

The Nature itself protects the act of conception, even with regard to the quantity. During conceptional coitus to the woman's vagina few hundreds millions of spermatocytes have been inserted, from which only one for million has reached tubal ampulla, where the fertilization by one spermatocyte the most frequently takes place. This process takes place in unique, natural environment, and despite of this fact the selection is so enormous. Spermatocytes in their migration through reproductive tract have to force a lot of biological barriers, and the result depends from individual features of each from all. It shouldn't be forgotten that egg cells are also matched. From amongst hundreds of thousand of reproductive cells being found in both ovaries, for ovulation over a dozen is ready in each menstrual cycle, and finally, one ovum alone matures.

As every ovum is unique, so is every spermatocyte, and they are statistically matched. Created by fertilization zygote in beginning of its development is in close contact with the environment by psychoemotional, physical and chemical flows<sup>6,10</sup>. This the most active biological structure which zygote is, may exists and develop only when its internal status is efficient. In opposite situation, has die. With the time the exchange of matter and energy with the environment is growing up and the migrating system finally is underdone the nidation in the uterus, where together with mother's organism creates good working system which makes this exchange easier. On this so early stage correlations between two human being – mother's and child's have great meaning. In this period also statistically conditioned phenomena can be easily observed. Only one half from fertilized egg cells – i.e. zygotes, survives to the moment of nidation. It provides a proof for precise, like it is before fertilization, prevention of proper development of new human system. We can named this event as a control management of primary internal status of new created organism opposite to maternal biological environment<sup>11,13</sup>.

After nidation self-organization of internal human organs takes place, nevertheless yet leading in 20–30% to miscarriages, whole the characteristic feature of miscarriages fetuses are chromosomal disorders in 80–90%. Negative influence of the environment for the organism of pregnant woman more often leads to the death of the fetus when its internal statues is abnormal. In such way – already during pregnancy – the selection of each new human being is made. Development must do more than simply convert an fertilized egg into an adult: It must do so in a way that ensures survival to a reproductive age.

### Artificial Human Conception

Unfortunately, not always fertilization in such natural way is available. Some people need medical help to become parents. To reach this goal, new reproductive technologies have been applied<sup>4,7</sup>. But, the technology used to help can also be misused, and have harmful consequences both for individuals and for society to set boundaries around technologies, prohibiting those that contravene ethical and social values, and to put in place regulation to ensure that only legitimate, beneficial uses. Within the clearly specified boundaries of what is ethically acceptable, the technologies must be offered only in a safe, fair and accountable way. Legislative prohibition has set limits and can protect against certain threat to human dignity and to woman's freedom. All dimensions: ethical, social, legal, scientific and medical should be taken into consideration. It is absolutely unethical to offer as services unproven procedures or treatment, and it is irresponsible to devote public resources to them<sup>9,14,18</sup>. Health care resources are limited, and the continued provision of unproven, ineffective, expensive technical procedures undermines the health care system by using resources without evidence of benefit<sup>2,3,5</sup>.

Decisions about resource allocation, access, and practice should be made in light of outcome – that is, practice should be evidence based. All form of human life and tissues should be treated with sensitivity and respect. Although the law does not treat yet embryos as persons, they are connected to the community by their origin and potential. Human beings, their reproductive capacities or tissues shouldn't be treated as commodities to be traded for money or other goods. Neither individual or collective interest take automatic precedence, each must be taken into consideration in any decisions made about new reproductive technologies.

From biological perspective the ideal time for a woman to have children is in her early twenties. This may not be practical or desirable for many woman reason. Women should have information on the biological realities of aging so they may factor this into decisions about when to have children.

Medically assisted reproduction (MAP) includes clinical and biological practices that permit in vitro fertilization, embryo transfer and artificial insemination and equivalent techniques that assist procreation, other than natural process. MAP's aims are to treat medically diagnosed infertility, or to prevent the transmission to the child of a serious and incurable disease.

IVF is too often offered in a way that is unacceptable. In about half of cases it is used for indications for which there is not good evidence it is effective. It should be legislated, that all medical procedures should move from the realm of research to that of treatment only if they can be demonstrated to be effective and beneficial, and only if information on their risk and effects is available. To date, IVF has been proven effective for only one category of infertility disorders – those involving complete blockage on the fallopian tubes. Only for this category of cases is it a treatment proven to be of benefit.

Some uses of IVF technology contravene human value, and are unethical, thus they should be banned. These includes IVF in support of preconception arrangements and IVF for post-menopausal women, IVF as profit making venture, and experimental uses of IVF offered as treatment. These include donation of eggs and zygotes, which raises the issue of potential coercion, egg retrieval solely for

the purpose of donation, which puts woman at risk without benefit, donation to woman who have experienced menopause at the usual age, storage of embryos for more than five years after death of either partner, and the implantation of eggs from female fetuses<sup>18,19</sup>.

Among the activities that are ethically unacceptable are: the buying and selling of gametes, zygotes, embryos and fetuses, for-profit provision of assisted insemination services should not be available for reasons of sex preference. Such services be provided only where there is a medical indication such as an X-linked disorder, and only in licensed settings with requirements for informed consent, data collection, and reporting. Medical advancements allowing the fetus to be seen as a separate entity from the pregnant woman. Increased awareness of risks to the fetus with avoidance of harmful exposures and treatment of disease in utero as well as establish an adversary relationship in which a pregnant woman's autonomy is compromised. Society has an interest in promoting the health and well-being of the fetus, but not at the expense of the basis components of the woman's rights – the right to bodily integrity, and the right to equality and human dignity<sup>3,20</sup>.

### Law Restrictions

In 1987 a Danish law was passed to set up a national Council of Ethics to review health care and general issues in biomedical research. In July 1994 bioethics became the law in France<sup>15,16</sup>. The law on medically assisted procreation has become more restrictive and precise than earlier. For example, according to this law, both members of the couple must be alive, of an age to procreate, and married. If not married, they must be able to prove that they have been living together for at least two years. Their consent to the transfer of embryos or insemination must be obtained beforehand.

An embryo may not be conceived unless gametes come from at least one member of the couple. Both members of the couple may decide in writing that the attempted fertilization of a number of oocytes will necessitate the storage of embryos, in order to fulfil their parental request within five days. Medically assisted procreation with donor gametes may only be carried out as a last resort when medically assisted procreation within the couple has failed. The creation of human embryos in vitro for study, research and experiments is forbidden.

Before carrying out MAP, the applicants must be interviewed by the members of multidisciplinary medical team, which must : check what the motives of the woman and the man are, and remind them of the possibility of adoption, inform them of the chances and success and failure of MAP, as well as its difficulties, give them description of its technique, remind the law regulations. One month for reflection is also requested from the couple.

Married couples who need medically assisted procreation by donor must give their consent beforehand to a judge or notary under the conditions laid down in the civil code. In the case of donation of gametes, the donor must be part of couple which has already procreated. The donor's consent and that of the other member of the couple must be obtaining in writing. The same applies for the consent of both members of the recipient couple, which can be withdrawn by either member of the couple before any intervention.

Artificial insemination with fresh donated sperm and any mixing of sperms are forbidden. The use of gametes from the same donor may not deliberately result in the birth of more than 5 children. The activities of collecting, treating, storing and transferring gametes may only be carried out in public health establishments or in non-profit-making organizations.

Also the problem of surrogate motherhood is now the subject of many discussions all over the world. The interesting one seems to be the FIGO Standing Committee on Ethical Aspects of Human Reproduction statement, in which the Committee has strong reservation about the practice of surrogacy<sup>19</sup>. The Committee was concerned that surrogacy generally might violate certain family values and can be applied only in cases of very limited special indications. Special attention has to be made to the ethical principle of protection of the surrogate mother who can be exploited because of her socioeconomic status. The autonomy of the surrogate mother should be respected and the surrogate arrangements should not be commercial. Surrogacy, if conducted by individual physicians, should be approved by an ethical committee and should be practiced strictly under medical supervision. The practice should take full regard of the law, and participants should be fully informed of the legal position.

One of the most promising ways of allowing to alleviate, to cure or to prevent a growing number of genetic as well as acquired diseases, including cancer and perhaps even AIDS is quite new method which is somatic gene therapy<sup>17</sup>. This method has recently entered the clinical setting as a highly experimental therapeutic procedure. An important and long-lasting research effort is still required before routinely performed medical applications can be envisaged. As somatic gene therapy is highly experimental, the ethical principles to be respected are at the very least all those applying to good clinical practice involving human subjects (namely, informed consent of the patients, with special care for children and incapacitated persons, review of research protocols by an independent and multidisciplinary body, such as an ethics committee, proportionality of risks and benefits, confidentiality etc.). Specific regulations concerning genetically modified organisms have been adopted to fulfil safety requirements. These regulations do apply to certain research and development aspects relevant to gene therapy, but not to clinical trials in the context of gene therapy.

At its present stage, gene therapy focuses on serious diseases for which there is no other effective available treatment. In the future, therapeutic indications may be widened. Somatic gene therapy has not only short term, but also individual and social long-term consequences. It costs is at present high but could become much lower in the future. In this respect, it should also be kept in mind that rare diseases are of little interest for the pharmaceutical industry compared to more frequent diseases. Both these points raise the problem of equal access to treatment.

Germ line therapy, which implies the attempt to cure or prevent transmission to future generations of gene defects resulting in serious diseases, raises considerably and controversial ethical problems. Although many discussions are already going on in various forms, the scientific basis and the technical feasibility of germ line therapy are far from being established. The possible transmission of the modification to future generations raises specific philosophical questions. Therefore, no proposal for clinical experimentation of germ line therapy on humans is at

present even contemplated. There are high expectations raised by the prospect of treating or preventing serious and widespread diseases<sup>8</sup>. The public has often either too high expectations or needless concerns.

### Conclusions

In conclusion, it can be said, that having the child resulting from medically assisted procreation in the case of infertile couple, can be considered as an undubitable triumph of the medicine. From the other hand, the question of responsibility has to arrive. This question is especially connected with ICSI – intracytoplasmic sperm injection. During this complicated procedure spermatocytes considered before as a pathological ones, unable to fertile, are underdone immobilization and after this procedure injected to the ovum by special catheter. This technique can be the base for the beginning of real human cultivation. During injection of sperm to the egg cell's cytoplasm some additional substances, i.e. DNA or chromosomes fragments, as well as invisible artificial fragments can be transferred. Nobody knows till now how great changes it can cause. It seems that natural barriers are crossed in such cases. Such manipulation in the present can influence the future. The jeopardy has been found not only in medical field, and concerns not only parents and children; the most important problem there are general results for new kind of life and the appearance of the man and society. Nowadays, the man doesn't appreciate the natural borders and doesn't have deep estimation to the Nature. The people now are able to produce the zygote and embryo, till now it was absurdal dream. The man will dream become creator of himself. It is not a goal for medicine which should only keep and save the life. Applying of new method of medically assisted procreation in cases in which we don't have adequate knowledge about reasons of such disorders and about potential risk for next generation can be considered as general irresponsibility.

Looking to development's greatest unsolved mysteries, they are still unanswered questions:<sup>1</sup>

1. What are the molecular mechanisms of morphogenesis?
2. What is the connection between development and evolution?
3. How do cells become committed to a particular fate?
4. What is the role of cell-cell signaling in development?
5. How are patterns established in the early embryo?
6. How do neurons establish their specific connections?
7. How do cells know when to divide and when to die in the sculpting of organs and tissue?
8. How do transcription factors control tissue differentiation?

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