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## EDITORIAL

# LETTERS TO DR FRANKENSTEIN? ETHICS AND THE NEW REPRODUCTIVE TECHNOLOGIES

HENK TEN HAVE

Since the birth of Louise Brown in 1978, new reproductive technologies like IVF, GIFT and ZIFT have become accepted medical treatment; these technologies are now in widespread use. It is estimated that more than 700 IVF programs are in place in 53 countries; more than 40,000 babies have been born after the first IVF birth [1]. However, scientific evaluation of the appropriate application of these technologies is missing; only recently, several initiatives have been taken to adequately assess the effectiveness, safety, costs, risks and benefits of the technologies in question. The discrepancy between general acceptance and lack of scientific assessment makes it hard to determine what is the appropriate use of the new reproductive technologies. In the past, several technologies have moved too quickly from the experimental to the accepted phase of application [2]. Given such historical lessons, the question therefore is: Why has IVF become the accepted treatment for infertility, displacing other medical technologies that are more effective? Even when adequate assessment has been available, public policy had no relation to the evaluation data. From the start, three competing perspectives on IVF have co-existed: IVF as:

- (a) laboratory technique;
- (b) medical treatment; and
- (c) seed-bed of social consequences and risks.

Gradually, the medical perspective has become dominant in public policy. In the Netherlands at least, health policy has never been antagonistic towards the medical development of *in vitro* fertilization [3]. On the contrary, when a cost-effectiveness study, initiated by the Dutch health authorities, shows that it is more efficient to have only five centers with very large programs than a large number of hospitals with smaller programs, the same authorities finally decided to license all 12 IVF programs that have developed [4].

Despite medical acceptancy and cooperative health policy, moral debates continue to accompany the development of new reproductive technologies. But here also, thorough studies are relatively rare. The majority of debates is rather haphazard and incidental; discussion goes on in newspapers, radio and

television, focusing on spectacular and exotic issues, relevant, if at all, for only a happy few. Even when a technology assessment study is undertaken, a systematic evaluation of the moral dimensions is generally not incorporated. The result is that whereas reproductive technologies have been firmly established within everyday medicine, the ethical debate concerning these technologies still gives the impression of an *ad-hoc* and unsystematic questioning of individual cases [5].

### THE MORAL CONTEXT OF REPRODUCTIVE TECHNOLOGIES

Continuation of the ethical debate indicates that reproductive technologies develop within a value-laden context which is not negated through widespread application. At least three characteristics of this context seem important.

#### 1. Increase of responsibilities

Creation and improvement of reproductive technologies have more and more deviated from the traditional pattern of procreation. Initially, artificial reproduction aims at technically improving the process of procreation, substituting for deficient parts of the process (through artificial insemination or IVF); next, cooperative reproduction aims at substituting for the reproductive actors (through egg donation or surrogate mothers); finally, selective reproduction aims at substituting for qualitative defects in offspring and improving the product of reproduction (through sex selection or pre-implantation diagnosis).

These technological developments have led to more individual control over reproduction and parentage, but have also expanded individual responsibilities. Technology can help to overcome the inevitabilities of chance and fate; it may enable individuals to determine the course of their lives, but it also necessitates to respond to questions whether, how and when to use technological facilities. As soon as reproductive technology is available, individual choices regarding its use can no longer be evaded.

From a moral perspective, more important than the expansion of responsibilities or the necessity of

choices is the question what we ought to do when we make decisions. What guideline(s) do we have in using or not using medical technology? Of course, the basic problem here is that apparently we do not have a normative guideline outside our own self-determinative capacities. Technological control of the reproductive process in particular has led to the erosion of appeals to nature as a normative determinant. We now tend to assume that decisions are morally acceptable if they are based on the personal, voluntary and considerate choice of an autonomous subject.

Nonetheless, it is remarkable that in many debates on reproductive technology, references to nature still play a definite role. Such references illustrate the need to reflect anew upon the significance of nature in normative debates. Nature here is not the traditional depot from which specific normative statements can be deduced; it is, however, relatively inarticulate; it is what is beyond our control, what sets a limit to our capacities of self-determination. Nature is "up-against-ness" (in the words of Charles Sanders Peirce): it is that upon what our human projects, our cognitive constructions, our well-intended interventions do not have a full grip. In this interpretation, nature has moral significance. The implication is that technological development is indeed expanding our power and responsibility, but is at the same time also carrying with it the experience that there are crucial dimensions of our life that are not under technological control. Precisely in the drive toward control we do experience uncontrollability. The problem is that in the moral debate regarding reproductive technologies the delicate balance between control of nature and respect for nature is not firmly established but needs continuous attention. As elsewhere in the natural sciences, it is not obvious that nature merely is the *prima materia* ready for scientific intervention and control under the guidance of autonomous decision-makers.

## 2. The social relevancy of reproduction: supervision and liberation

A remarkable phenomenon in the area of reproductive technology is the existence of many utopias and dark scenarios. In such literature, one question is predominant: who is in control of the application of reproductive technology? There is always danger that this technology is used for other purposes than relief of individual need. In its negativity, this literature correctly points to the fact that procreation is not merely a matter of individual choice, but also has social, sometimes political significance.

Control of procreation implies influencing the evolution of society and the quantity and quality of future generations. Historical studies show the interconnection of procreation and social order (see for example Ref. [6]).

Today, even with the emphasis on individual reproductive choices, social implications cannot be disre-

garded in moral evaluation, for example in the current debate on sex selection [7]. It is not only because every individual decision has social implications, but also because of the moral dimension of procreation itself, that such social control issues are and should be raised. In as far as procreation is not merely a physiological function such as digestion, circulation or respiration, but the creation of new life, and thus of potential new members of society, procreative decisions are not merely a private responsibility.

This is not to say that procreation should be subjected to the same mechanisms of control or manipulation as in the past. It only calls attention to the fact that the present-day emphasis on individual reproductive choice tends to forget the dimension of social control. It is obvious that the availability of reproductive technologies has had liberating effects, especially for women. It also helped people to overcome negative attitudes towards sexuality and traditional paternalism and moralism *in res sexualibus*. These effects can hardly be denied. Nonetheless, liberty in this context has its price: procreation, pregnancy, childbirth and childbed have at the same time become objects of a new type of control and supervision.

The long-time distinction between normal and medically abnormal (or medically assisted) procreation is more and more obliterated. Normal procreation is gradually embedded in a medical context; even the period before conception is medicalized through the development of preconceptional care and genetic counseling. Certain standards of responsible behavior towards the process of procreation have been developed which make it somewhat naive to state that reproductive choices are primarily a private matter. Individual freedom to procreate has increased within the context of expanding practices of supervision and counseling, guided by 'reproduction experts'. This concomitant development makes moral judgments ambiguous: instead of a rather straightforward evaluation in terms of emancipation of medicalization, we are confronted with both phenomena at the same time.

## 3. Interrelation of ethics and technology

A third contextual factor initiating constant ethical debate is the problematic relationship between medical interventions, particularly in the area of human reproduction, and moral reflection. Exemplary is the response, early this year, of a researcher to criticism of his experiments with ovarian tissue from aborted fetuses. He cannot understand why all letters addressed "Dr. Frankenstein, University of Edinburgh" are re-directed to him. The experiments are technically well-designed and feasible; they are promising and may offer a solution to specific problems; possible moral issues will be reviewed by the institute's ethics committee. In the researcher's opinion, ethical problems will only arise when the results of the experiments are applied to patients. Such opinion is

not unusual: technology first, then ethical reflection. Given the dynamics of scientific and technological evolution, it is hard to predict what will be tomorrow's knowledge and medical practice, and thus difficult to develop normative frameworks for future application. But opinions like these give voice to an old-fashioned demarcation between value-free acquisition of knowledge and value-laden application of knowledge. However, the idea that ethical reflection is following (or lagging behind) technological developments is also related to a predilection within ethics itself for a particular type of problems and questions [8].

#### TYPES OF MORAL QUESTIONS

When medical technology is evaluated, two types of questions are relevant from an ethical point of view:

(1) *Moral questions that arise within the framework of the technology.* Examples, in the context of IVF, concern the moral status of the embryo, the right to procreation, the conditions for surrogate motherhood. Characteristic of this type of questions is that they remain within the framework of the technology; they proceed from a basic acceptance of the technology as a datum or *fait accompli*; their underlying concern is how its responsible and appropriate use can be defined.

(2) *Moral questions that concern the technology itself.* Here, analysis is not directed on justifiable applications, but on the question whether the technology as such is justified in the light of moral values. Technologies are expressions of fundamental values, such as the search for knowledge or the relief of suffering; however, these values are no longer taken as implicitly given, but as starting-point for a debate on (other) motivating values in society.

Usually, only the first type of moral questions are addressed when a new reproductive technology is morally evaluated. The problem here is not only that this is a too narrow focus. It also points to a more fundamental dilemma. If it is true that our life-world is more and more penetrated and dominated by science and technology, especially medical science and technology, and if this is the cause for more and more moral questions, then the answer to such questions cannot be found through a technological ethics which is itself a symptom of the fundamental problem. What is regarded as the solution, is in fact another manifestation of the problem. The basic objection against focusing upon the above first type of ethical questions is that in doing so, ethics is incorporated in a technological model aiming at evaluating and calculating effects, and at controlling and eliminating problems. The suggestion that such a conception of techno-ethics is just a component of the fundamental problem that brings us to moral debate in the first place, is not even considered a

relevant one. On the other hand, more attention to the second type of ethical questions does not necessarily imply a negative attitude towards reproductive technologies. The basic intuition about the relevancy of such questions is that these technologies are morally ambiguous and that this ambiguity needs clarification. *A priori* approval or condemnation is therefore not possible. Use of reproductive technologies may ameliorate human suffering and enhance happiness; but it may also create problems through changing role models, influencing personal relations, and affecting the moral status of embryos. In evaluating the technologies, a moral judgment on their appropriate or inappropriate use is not sufficient; our own position as moral actors is also at stake because these technologies confront us with the query what kind of people we want to be. Why do we want children? What kind of parents do we want to be? What kind of relations do we want between men and women? Such questions can no longer be addressed within the given framework of the technology but they challenge the significance of technological intervention itself.

#### THE RATIONAL APPROACH OF REPRODUCTIVE TECHNOLOGIES

Medicine's standard way to evaluate the significance of technological intervention is a rationalistic approach. Before new technologies are allowed to proliferate, they need scientific assessment, based on valid information on the effectiveness, safety, costs, benefits and harms of the technology in question. Application of a technology is appropriate if it is effective as well as beneficial for individual patients.

Unfortunately, such type of evaluation is not available for the new reproductive technologies. In fact, in a recent study, it is concluded that the rapid, widespread proliferation of IVF is not justified by its scientific assessment [9]. If IVF is considered like every other medical treatment and if it is analysed and evaluated with the same criteria as other services, then it will most probably not receive a positive judgment. Too many open questions can be identified: the ambiguity of the problem (infertility) as well as the criteria of success, the uncertainty about risks, benefits and costs, the lack of attention to prevention and alternatives, the need for public policy and quality assurance.

Definitions of infertility are problematic because the differentiation between normal and abnormal is arbitrary. The World Health Organization defines infertility as not conceiving after cohabitation for two years, while the U.S. Office of Technology Assessment defines it as the inability to conceive after 12 months of intercourse without contraception [10]. It is obvious that different definitions have important consequences for the alleged prevalence of infertility.

Similar ambiguities exist for the effectiveness of IVF. Various definitions of efficacy (e.g. embryo

transfer, started treatment, clinical pregnancy, live birth) lead to different success rates. It is argued that determining the true effectiveness of IVF requires a comparison with other treatments for infertility and with no treatment at all [11]. Such clinical trials may prove that IVF has limited value; a considerable proportion of women accepted in IVF programs will achieve pregnancy without treatment.

A third problem concerns risk assessment. In fact, there is a lack of scientifically valid information derived from epidemiological studies.

Many questions concerning the risks are unanswered. Stephenson concludes that given these uncertainties, infertility problems should be managed conservatively; one should not assume that medical options in infertility are preferable [12]. Koch identifies a large range of risks: complications of oocyte retrieval, complications of embryo or egg transfer, birth complications, long-term risks for children, psychosocial impact on women [13]. Relier, Couchard and Huon indicate that in their Paris Neonatology Intensive Care Unit, one in every five babies is an IVF baby. They conclude that the tragedy of infertility should be balanced against the tragedy of perinatal death, the suffering of extremely ill neonates, and the devastation of long-term handicaps [14].

From a scientific perspective, the practice of the new reproductive technologies is profoundly irrational. New technologies should not be widely diffused as accepted medical treatment until scientific assessment has been completed. Why then are reproductive technologies widely used? It seems that a rational, scientific perspective is inadequate to understand the significance of reproductive medicine. Perhaps a better approach is to proceed from the motivations of the relevant actors (doctors as well as patients). The use of this spectacular technology seems to be driven by the moral motivation that it will enhance the interests of suffering persons. If that is true, a moral debate is inescapable: given the scientific irrationality, we should analyse and discuss the objectives and practices of reproductive technology primarily from a moral point of view.

#### THE ROLE OF MORAL EXPERIENCE

For many people, having children is self-evident. This normal perspective is broken when, for whatever reason, persons do not succeed in becoming parents and bringing children into the world. Being unable to bear children, they may experience stress, guilt, self-blame and feelings of loss and inadequacy. Infertility may threaten one's self-concept or may be regarded as a symbol of role failure.

Confronted with such negative experiences, reproductive technologies can only be considered morally good: they may take away the suffering due to infertility and the adverse psychosocial impact of involuntary childlessness. Of course, problem and

solution are not unrelated. The experience of infertility as a tragedy cannot be separated from the increasing control over the reproductive process. Infertility creates a stronger feeling of being out of control now that contraceptives enable us not to have children. While at one moment children are *not* allowed to come, they *must* come at another moment when they are desired. Since fertility is a matter of personal control, infertility is a problem because begetting seems to escape control. With such desire for children, restoration of control over reproduction can only be experienced as good; within this context, reproductive technology will necessarily be valued positively. In IVF literature, negative patients' experiences and relief of suffering brought about through medical intervention, dominate as major moral justifications for the use of reproductive technology. And to a certain extent—they are.

Nonetheless, the story of experiences is more complicated. First, it should be pointed out that persons involved in an IVF program are not representative of all infertile people. Not for everyone is infertility a tragedy. Results of studies on the psychosocial impact of infertility may thus be biased. Moreover, childlessness may be experienced as a source of suffering, now that IVF is advertised as a remedy. The perception of a problem may therefore be influenced through the availability of a promising solution. This interrelation implies that the 'negativity' of experiences becomes less massive and overwhelming. Similar arguments can be made about the experienced 'positivity' of IVF as solution. There are also studies describing the negative impact of IVF treatments on women [15]. For the majority of patients the problem of infertility in the end will not be resolved. Experiences which initially present themselves as strongly negative or positive, can therefore, upon reflection, not be interpreted as unambiguous.

A second complication is that the notion of experience itself is changed as soon as reproductive technology is available, whether we actually use it or not. Sherwin, for example, criticizes ethical studies of IVF for their emphasis on individual autonomy and for their lack of attention to the medical reduction of women's experiences [16]. She argues that there is a two-fold reduction: a compression of the problem definition (infertility is a biological defect leading to psychological distress), and a narrowing of the range of possible solutions into a preferred technical intervention. The point is that experiences of infertility are no longer 'naive': they are no longer prior to technological opportunities, justifying the use of technology, but they have 'passed through' such opportunities, and are therefore specified, modified and coloured. The effects of this process are visible in our culture. Fertility no longer is a characteristic of a couple, but it is individualized. Time as a relevant dimension is eliminated, now that connections between generations can be by-passed. Synchronic and diachronic relations characterizing fertility have therefore be-

come contingent. The emphasis on biomedical interventions has made other approaches less attractive and tends to produce relative neglect of prevention of infertility. It also localizes the problem within the woman's body [17].

The conclusion is that moral experience nowadays is mediated through medical technology. We cannot determine whether a technology is morally desirable or not, without acknowledging that the technology itself is influencing this determination. The experience which is at the basis of moral judgment is itself pre-formed by a medical perspective. This formative perspective—that within the context of reproductive interventions is problematic on rational, scientific grounds—connects a technological solution with a specific vision of the problem (infertility as a biological disorder), the body (a scientifically controlled reproducing organism) and interpersonal relations (emphasizing the importance of genetic identity).

The only way to evade a naive moral judgment is to focus on the relationship between technology and experience as the proper object of reflection.

#### TECHNOLOGY-MEDIATED EXPERIENCE

In this approach, changing technology itself is object of analysis. Thus, the above-mentioned second type of moral questions is on the agenda. Theme is no longer the effect of medical technology, but the technical rationality manifesting itself in and through technology. It may be questioned, for example, what we do when this type of rationality dominates our response to complicated human situations and experiences of suffering, bodiliness, finiteness, disability and illness. There is no doubt that the fascination and superiority of technical rationality has brought many positive things, but it is also associated with compartmentation and reduction of experiences and interpretations. Technology often seems to be connected with a tendency to value objects, things, instruments more than people. Literature on reproductive technology usually refers to treatment cycles, embryo transfers or pregnancies, not to women, mothers or babies. Medical discourse concentrates on bodily processes and organic functions. Another example of the impact of technological rationality is the emergence of specific conflicts of interests since the introduction of technology in clinical practice; the treating physician now is in many cases at the same time scientific researcher; it can no longer be naturally assumed that the interest of the individual patient will prevail over other important interests. Particularly in the area of reproductive medicine, many less idealistic interests play a role (reputation, business, employment). A third example of what technological rationality may bring about is that the availability of technology may also induce in patients some alienation from their own subjective experiences. The availability of reproductive technologies is changing the meaning of female bodiliness; reproduction and

fertility are considered as body functions that are re-interpreted with an implicit norm of productivity. Women's experiences can only be exchanged within a medically orientated view of the body.

These examples indicate how technical rationality is determining our thinking and acting. Precisely the tendency of technology to re-orient and dominate our experiences and practices is, although known for a long time, at the root of our discomfort about technological medicine and the reason to ask moral questions. Ethical reflection should, therefore, attempt to explore and articulate the fundamental discontent evoked by medical technology as the basic source of moral issues; ethical debate should try to detect and reveal new perspectives. This articulation should not work with a pessimistic sense of being overwhelmed by the power of technical rationality; it should start from the notion that a better understanding of technology's power also implies insights into the limits of a technological worldview and image of man. Not despite but because of technology, man is able to obtain a better understanding of the *condition humaine*. It is particularly the massive dominance of technology which stimulates us to search for other aspects of being human than mere technical, instrumental action. The more our bodies, our lives, our experiences of being parents, or our grievances and suffering for being childless are moulded and controlled by medical technology, the more we can discover that the meaning of human existence is not reduced to increasing regulation and control of life and world. That is a major reason to explicate moral experiences that are not dominant within medical discourse, and to reflect upon those experiences which tend to be marginalized through the spectacular, breathtaking impact of technological rationality.

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