Reflections and Comments on Regulations of Biotechnologies that Touch the Beginning of Human Life¹

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INTRODUCTION

With the establishment of The President's Council On Bioethics, the probably most detailed effort by government to review clinical applications and regulations of biotechnologies, which touch the beginning of human life, has been initiated. This is a very laudable effort. Reproductive scientists, who are advancing the field, can be charged with biases and even more obvious self-interests. A democratization of the discussion through increased public involvement, by itself an unavoidable consequence of any government effort, should be welcomed. Like many of my colleagues, I view this effort with a considerable level of suspicion, paradoxically for exactly the same reasons which made me welcome the appointment of the Council in the first place: the inherent conflict of politics with policy.

I was delighted to receive an invitation from the Chairman of The President's Council to submit some of my thoughts for consideration. The following are my written reflections.

A DISCLAIMER: MY OWN PERSONAL BIASES

My own involvement with human in vitro fertilization (IVF) goes back to 1981, first as head of an

academically based IVF center, and, since 1991, as either part- or full-time owner of privately based centers. For the reader of these pages this is important to know, since my opinion may be reflective of economic and other biases.

BIASES BY VARIOUS INTEREST GROUPS

Similar biases exist, however, for other constituencies as well. Professional organizations, like the American Society for Reproductive Medicine (ASRM) and the American Society for Assisted Reproductive Technologies (SART) would not exist in their current form, were it not for the developments in the field of infertility that have taken place over the last 25 years. Lay-organizations, like RESOLVE, were similarly affected by the progress in the field, which has greatly contributed to the visibility (and probably membership) of such organizations. Journals, like the Journal of Assisted Reproduction and Genetics (which I edit) would not exist and others, like Fertility and Sterility, would be significantly less prosperous, with fewer scientific contributions and significantly less advertisement revenues, currently generated by a large variety of suppliers to the infertility industry. Many of my colleagues' practices would either cover different areas of medicine, produce different income levels and, indeed, many of my current colleagues in the practice of infertility might not have specialized in this arena, had the progress in

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infertility treatment over the last 25 years not been so remarkable and opened such enormous market opportunities.

Twenty-five years of unprecedented progress has created an “infertility industry,” which, like other economic interest groups, has a distinct self-interest in preserving and expanding its sphere of influence and economic prosperity. The public has greatly benefited from these developments, as most female and male infertility problems became amenable to successful treatment during this time. Yet, the obvious self-interests, arising from such economic dependencies, need to be considered when voices, representing such self-interests, are included, are asked to participate in a discourse on the ethics of creating human life.

Even the lay public is not immune to considerations of self-interest, especially if themselves are affected by infertility. For example, an individual, herself or himself, experiencing an infertility problem, or witnessing a close relative in such circumstances, may be more inclined to support additional research or federal funding for such research than completely uninvolved lay people. Since few families are unaffected by infertility, the “fertility lobby” extends widely into the lay-public, as also so well demonstrated by the increasing number of insurance mandates, passed by various state legislatures (1).

Such proinfertility sentiment is counteracted by opposing biases and self-interests from a variety of sources. Some are again economic in nature, such as employer groups opposing mandated infertility benefits (1), while others are strongly belief-based. For example, individuals, following Catholic doctrine, have to oppose most fertility treatment-related activities, whether academic or clinical in nature, in order to satisfy Catholic ethical teachings (2). Others are political, mixed political-religious or ideological in nature. Current administration doctrine is obviously conservative in nature and, therefore, inherently skeptical of all biotechnologies, which can affect the beginning of human life. Since this administration appointed the Chair and the membership of The President’s Council on Bioethics, one has to anticipate, and take into consideration, that belief- and/or ideology-affected biases will enter deliberations and final recommendations of this committee.

CONFLICTING INTERESTS

If one accepts the notion that most of us exhibit biases of economics and of beliefs in address-

ing the here reviewed ethics issues, then one has to strive towards a more constitutional resolution of existing ethical conflicts. In recognition of the subjectivity of beliefs, this country was founded on a constitution and the rule of law. Conflicting beliefs are exactly the reason why our forefathers insisted on enshrining some basic concepts of personal freedom. And foremost, amongst those rights, are the rights of privacy and the right to build a family of one’s own choosing; that is the right to reproduce in freedom.

Contrary to the restriction of personal rights in the name of protecting the rights of other individuals (e.g. both liberal and conservative administrations in California and New York states have restricted the freedom to smoke in order to protect second hand smokers), to exercise the right to reproduce in privacy does not affect any conflicting rights of another person. To restrict such right would, therefore, appear to be unconstitutional.

Ethicists have argued that certain applications of biotechnologies to the beginning of human life are unethical, because they undermine the concept of “human dignity” (3). Under the constitution, U.S. citizens have an absolute right to live in dignity, yet, the constitution does not permit the violation of a citizen’s basic human rights in the name of “human dignity,” while the definition of individual rights is absolute and, therefore, well defined by the constitution.

IT IS NO LONGER ONLY INFERTILITY

Until only a few years ago, biotechnologies, potentially affecting the beginning of life, were principally restricted to the treatment of infertility. All of this changed with the recognition that early embryos could be the source of human stem cells (4) and that human cloning might be technically possible, after all (5). Both of these discoveries unleashed a new wave of entrepreneurs and, with it, a firestorm of additional controversy (6).

EMBRYOS FOR HUMAN STEM CELLS

Whether human life begins with fertilization of an egg by a sperm, prior or after implantation, before or after detection of fetal heartbeat, before or after proven neurological activity in the fetus or at any gestational stage is one of the most contentious issues in

our society today. A very determined ruling by the U.S. Supreme Court, in *Roe versus Wade*, affirmed a woman's right over her own body and, basically, prioritized this right over the right to life of the developing fetus, until that fetus reaches potential viability outside of the mother's womb. Only once the fetus reaches such a developmental stage is that fetus given its own constitutional protection against death, in that the mother is no longer permitted (with exceptions) to voluntarily terminate her pregnancy (7).

It appears legally illogical that a woman has the right to terminate a pregnancy up until advanced stages of pregnancy, but does not have the right (in cooperation with her male partner) to create an embryo in vitro, which then is used at her (and her partner's) instruction for the generation of human stem cells. Nobody would deny this woman's right to donate her blood, her bone marrow, her kidney or even her oocytes. And in decades, nobody has seen any problem with semen donations. Yet, the donation of his semen and her oocytes for the distinct purpose of creating embryos for stem cell production is, by many, considered unethical.

Emotionally, one may understand such a differentiation but, legally, it makes little sense.

Ethicists have expressed concern about the creation of human embryos for the only purpose of being destroyed (8). Once again, concern about the dignity of human life is applied selectively, as thousands of human embryos are being destroyed daily in the normal and routine conduct of human IVF worldwide (9).

Similar hypocrisies exist throughout the ethical frameworks established for the reproductive sciences. The Ethics Committee of the ASRM recently approved the concept of gender selection for non-medical indications under certain conditions, if performed preconceptionally by sperm sorting but, in principle, objected to postconceptional preimplantation genetic diagnosis (PGD), even though the latter method is far more reliable (10). The Committee's principal objection was, paradoxically, not an ethical objection to gender selection (indeed, the ASRM reaffirmed its support of a couple's reproductive rights to choose how to build their family, inclusive of the right to balance gender within the family), but to the destruction of human embryos for no obvious medical purposes (as if the ASRM was unaware of the daily destruction of embryos during embryo selection, in the normal conduct of clinical IVF).

Considering that thousands of human embryos are destroyed daily worldwide, it would appear to this

author unethical and unjust to use this excuse in preventing the potential treatment and cure of many diseases through stem cell research. Indeed, the fact that so many embryos are found unsuited for fertility treatments does not necessarily mean that they are also unsuited for the generation of human stem cells. The government would appear well advised, if truly concerned about the fate of unused embryos, to start funding human embryo research, which would allow the community of investigators to answer important questions like this.

HUMAN CLONING

The cloning process of human cells can be utilized for two purposes: the creation of human embryos for the production of stem cells and/or for other nonreproductive purposes, or, for nonsexual reproduction (i.e. reproductive cloning).

No serious scientist can, at this point, claim that, what so far has been learned from cloning in animals, allows the ethical progression into reproductive cloning. Animal data are currently simply not reassuring enough about major congenital anomalies and/or long-term health effects. It also appears that the cloning process is still very inefficient and that a large number of attempts are required in order to achieve success (5). Human application, in any form of clinical practice, even after safety has been established, would require a higher level of efficiency.

As the science of animal cloning progresses, we can anticipate that at some time our knowledge will reach a point where human application of the reproductive cloning process may, from a technical view point, appear feasible. This may turn out to be the case earlier than anticipated, because progress in the field is rapid and past experience with human embryology suggests that nature creates blocks towards reproductive success, if embryos are significantly abnormal. If this can be demonstrated also to be the case when embryos are created through cloning, concerns about an increased number of birth defects would abate.

There exists, however, currently an absolute revulsion against the concept of reproductive cloning in a large majority of the public and major efforts are underway to outlaw the clinical application of this process in humans. Indeed, many countries have already passed legislation to ban the cloning of human cells in general, or to prohibit, specifically, the option of reproductive cloning (11).

The principal argument against reproductive cloning is, once again, an attempt to preserve "human dignity," which, according to many ethicists, is based on a concept of sexual reproduction. Any attempts at asexual reproduction would, based on those opinions, devalue the traditional understanding of what humanity stands for and is unacceptable (12).

Very similar discussions took place in the 1970s, when the concept of human IVF was first considered. Many ethicists then made the claim that the unification of egg and sperm outside of the human body was "dehumanizing" and should be prohibited, including the current Chair of the President's Council on Bioethics (13). IVF has become one of the big success stories of modern medicine and has led to the birth of hundreds of thousands of human beings which, otherwise, would never have been born. Some may not agree with this statement and argue that the introduction of IVF initiated a "slippery slope," which has led to many of the ethical quandaries we currently are facing in the application of biotechnologies to the beginning of human life. The Catholic Church is probably the most prominent proponent of such a view (2), but this view is not shared by other major religions (14).

Why asexual reproduction should affect human dignity differently from other assisted reproductive technologies, such as IVF, has never been well explained. One argument, frequently heard, is that it would represent the procreation of only one of two partners. Yet, such procreation has been practiced for decades: women have been inseminated with anonymous donor semen and have given birth to their husband's child with and without later knowledge of their offspring. More recently, the opposite circumstance is increasingly played out, in that women give birth to a child, conceived with their partner's semen, but with donated eggs. And, once again, some couples tell their children, many others do not (15). Assisted procreation of single partners also takes increasingly frequent place, as the consequence of alternative life styles, as single women procreate and same gender couples have children of their own, utilizing a variety of assisted reproductive technologies to reach their goals (16).

To this author it appears that one of the most basic rights of every human being is the right to reproduce and to choose a personal way toward building a family. Government has no place in that process, except to assure that the scientific processes involved are safe.

Media coverage and political pundits also have been giving the impression that reproductive cloning would lead to a plethora of unethical applications, in attempts to use the technology to create "super-offspring" or benefit primarily the rich. Similar concerns about potential abuses were also widely voiced when human egg donation was first introduced (17). Some expected large numbers of pregnant grandmothers who would change, not only the demographics of the country, but affect inherent societal structures. All of this has not taken place. Very few grandmothers wish to conceive and make use of this available technology. Egg donation has become a panacea for primarily young women with premature ovarian failure, for whom this represents the only option to have a child. The very few older women, who chose to utilize the technique, usually have excellent personal reasons to do so and will deliver safely (18).

To expect a huge wave of individuals who wish to clone themselves appears nonsensical. Most people, even if given such a choice, would not proceed. And what does really give us the right to deny such an option to those very few who may have a very good personal reason to pursue it, in an attempt to build their family?

THE SLIPPERY SLOPE

One argument, heard over and over again, is that allowing the next possible step will put us on a "slippery slope," which, in the end, will lead to disaster, because further developments will be unstoppable. This argument is basically integral to medical progress in itself, in that it has been made throughout history, from the earliest days of modern medicine, which was then perceived to interfere with "God's will." A strong religious sentiment exists even today when this argument is resurrected at every stage of medical progress.

As we noted above, this argument was made before IVF was found possible in the human, before human embryos were discovered to be freezable and before egg and embryo donations became standards of medical care. It was heard when PGD was first reported and it is, basically, being repeated with any new application of PGD reported in the literature. In fact, some European countries have passed laws to ban the utilization of PGD based on this argument (19).

The best evidence that this argument is categorically incorrect lies in the fact that we are, as we speak

(and here write), in the midst of very serious discussions on the use of biotechnologies that touch early human life. If we were already on a “slippery slope,” these discussions would not take place. Society has the liberty and the free will to decide at any given point what is and is not appropriate societal activity. To assume a sudden paralysis of this ability, simply because scientists may discover new treatment options that may be worthwhile pursuing, appears silly and almost degrading to the human mind. Mankind does not need a legislative “big daddy” for protection. We are able to put on the breaks at any point, on any slope, no matter how steep!

SOME ADDITIONAL HISTORY

The Brown baby, born in 1989 (20), initiated one of the largest revolutions in medical history. The treatment of infertility, up to that point more or less a pseudo-science, suddenly reached for the cutting edge (and reached it). Hundreds of thousands of children have been born since, utilizing the new technology of IVF. None of them would have seen the light of day without IVF! The world has so far failed to recognize this achievement, since Bob Edwards was awarded the Lasker Prize, but not the Nobel Prize for Medicine.

Since the Brown baby was born, the field of infertility has been virtually conquered. We can now offer parenthood to almost any individual. This is a unique achievement, unmatched in any other field of medicine. A similar level of success in cancer research would have meant the cure of 95% of all cancers, in cardiology, the prevention of 95% of cardiac deaths.

What makes this achievement even more remarkable is the fact that, in the United States, not one penny of federal funds went into research towards this goal. Compare this to the billions of dollars spent on research in every other area of medicine.

Maybe even more importantly, the reproductive sciences, in achieving all of this success, are helping to produce new life. All the billions of dollars that are going to other areas of research in medicine are, basically, going to the preservation of old life. Society should appreciate these facts and has, so far, largely failed to do so. Imagine a circumstance where, instead of being self-funded and self-regulated, our profession, like the rest of medicine, would over the last 25 years have been government-funded and -regulated. Does anyone se-

riously believe that progress would have been the same?

MY CONCLUSION

My conclusion is rather simple: do not rock the boat! Biotechnologies, that touch the beginning of human life, have over the last 25 years, been applied with great success and with considerable ethical integrity. There is always an opportunity for further improvement. As the last 25 years have well demonstrated, the government is not needed to achieve such improvements.

There are ample examples how government intervention can harm the process: in England, thousands of frozen embryos had to be destroyed, simply because the law allowed them to be cryopreserved for only so many years (21). In Austria and Germany, the law considers the transfer of more than a certain number of embryos a criminal act, independent of the patient's age and embryo quality (22).

In this country, we have started to see a troubling incursion of government into the field via The Food and Drug Administration (FDA). Without defined Congressional mandate, the FDA has assumed a supervisory role over reproductive sciences, equating reproductive science laboratories with commercial drug manufacturers. The FDA's first act under this self-appointed new responsibility was to prohibit cytoplasmic exchange, a treatment under investigation, to conquer the last bastion of female infertility, the aging egg (23). Had the FDA assumed similar powers 25 years ago, IVF, as we know it, would not exist, hundreds of thousands of children would not have been born and the world would look distinctively different. Just ask the affected families!

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