Outside the Lab: An Argument for Stem Cell Research

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Stem cell research, so promising and so controversial, generates an enormous amount of debate. There are many complex issues associated with the area and nearly all are centered on value judgments, making them difficult, if not impossible, to resolve. The possible methods for obtaining stem cells lie at the heart of this debate. One promising resource for stem cell research could be the excess of embryos that are produced by in vitro fertilization (IVF). As U.S. policy stands, these stem cells cannot be used for research in laboratories that are supported by government funding. This decision is inconsistent with a number of other U.S. policies: precedents set in areas pertaining to embryo ownership, the ability of women to seek out abortions, and the right of people to donate their bodies to science after death lead to the conclusion that government-funded stem cell research aligns with prior policies and that couples should continue to have the right to donate unused embryos for the furthering of scientific knowledge. Moreover, policy in other areas offers compelling reasons for allowing federal funds to be used for stem cell research.

Before discussing the policy issues in donating unused embryos for research, it is important to have a basic understanding of the science of stem cell research. An embryo is defined as a “developing organism from conception until approximately the end of the second month (1).” The term ‘embryonic stem cell research’ can be somewhat misleading, because the desired stem cells are only present up to the point in development when the organism is a blastocyst, a small cluster of about 30 cells (2). It is worth noting that if such an organism were developing inside a woman, the stem cells would be derived at a point in time before implantation into the uterus (3). Stem cells are capable of dividing and persisting for a long period of time, and may become any type of cell in the body (4). Stem cells can be derived from human embryos, human umbilical cords, and animals. Until recently, it was believed that some adult cells such as bone marrow cells were also types of stem cells, but this categorization is disputed because these adult cells have characteristics different from those derived from an embryo (5). In addition, a key issue in the use of stem cells is also whether they are totipotent or pluripotent. A totipotent cell has the ability to differentiate into any cell in the human body, while a pluripotent cell still has the ability to become one of many types of cells, but within a more specific category, such as the cells in the nervous system (6). Currently, it is believed that embryonic stem cells are the only type of cells that are totipotent (7). Certainly, embryonic cells from animals would also be totipotent and, in that regard, be useful for research. However, for future therapy using stem cells, animal cells would not be compatible with the human body.

Stem cell research is a relatively new area with very little existing legislation. Only two pertinent court cases regarding ownership of embryos have been decided. Thus looking to abortion, a more well-known issue, can aid in furthering the argument for donation of embryos for research. Beyond the legal status of the embryo as a human and the issues of embryo ownership, the ideological framework we use to look at the potential life of an embryo is disputed. However, if the embryo is viewed as similar to an adult cadaver, having no potential for life, current precedent provides a very persuasive argument for use of embryonic stem cells in research. This same line of reasoning, along with information about the current allocation of federal funds, provides an argument for why research involving embryonic stem cells should be governmentally funded.

With all the debate surrounding stem cell research, why do we want to conduct stem cell research at all? Since the area is new, it is hard to predict the scientific opportunities that stem cell research may provide. Stem cells show great promise for being able to hinder or reverse many degenerative diseases. Parkinson’s and Alzheimer’s are two of the diseases most often cited as conditions that could be helped with stem cell research and therapy (8). Diabetes and heart disease may be treated with stem cells as well (9). Opponents of stem cell research argue that there is no evidence for the usefulness of these controversial methods in reducing the impacts on diseases prevalent in our society. Yet human embryonic stem cells have been researched for only six years with many restrictions, so this argument rests on dubious foundations (10).

For those who believe that stem cell research should be promoted, establishing a basis for the legality of embryo donation can begin by looking at other cases in which a related issue is addressed: the issue of embryo ‘ownership’. The first of two applicable cases regarding embryo ownership is York v. Jones, decided in 1989. This dispute arose when the Yorks, a couple who had
been undergoing infertility treatment, moved from New Jersey to California. While living in New Jersey, they had stored a pre-embryo at The Howard and Georgeanna Jones Institute for Reproductive Research in Virginia. After moving to California, the Yorks sought to have the pre-embryo transferred to the Institute for Reproductive Research in the Hospital of the Good Samaritan. The Howard and Georgeanna Jones Institute twice refused to move the pre-embryo. This case was the first regarding the problem of embryo ownership in the instance of in vitro fertilization (IVF). The main issue of *York v. Jones* was the contract which the Yorks signed at the Jones Institute and the implications that it held for the embryos in storage. The three possible fates outlined in the contract gave no indication that the pre-embryo had any special status as a human. The contract stated, “Should we for any reason no longer wish to attempt to initiate a pregnancy, we understand we may choose one of three fates for our pre-zygotes that remain in frozen storage. Our prezygotes may be: 1) donated to another infertile couple…2) donated for approved research investigation 3) thawed but not allowed to undergo further development (11).” It is worth noting that the language used in the contract at the Jones Institute made it quite clear that the pre-embryo in storage was viewed as property rather than as a human child.

The case of *Davis v. Davis*, which was filed in 1992, centered on the issue of embryos as people or property. While they were married, the Davises discovered that they were infertile and began undergoing IVF treatment. As part of the procedures, they stored seven embryos for implantation at a later time. However, before pregnancy could be achieved with these embryos, the couple divorced. The problem arose when Mrs. Mary Sue Davis wanted “custody” of the embryos so she could implant them in her uterus in another attempt to become pregnant. In the Court of Appeals, the issues surrounding the rights of the embryos and the interests of the potential parents were explored. These issues were “the person versus property dichotomy, the enforceability of contract, the right of procreational autonomy, and the balancing of the parties’ interests (12).” The final decision of the court was that Mr. Davis’ rights outweighed those of Mrs. Davis or the embryo and that the embryos were not to be used for implantation in Mrs. Davis or any other woman to whom the eggs might be donated (13).

The Court of Appeals determined that the embryo could not be considered a person under the law in Tennessee, where the Davises lived. The law in Tennessee holds that in order for a fetus to be considered a person, there must be a live birth, which obviously would not be the case with embryos that had not yet been implanted. Furthermore, Tennessee follows the guidelines that the fetus gains more and more rights as it develops (14). From this standpoint also, the embryo would have comparatively few rights. The opinion noted that the only state that considers embryos to be people is Louisiana (15). It can be surmised that in the rest of the states, regardless of the finer nuances of their laws, that embryos are not considered people at the moment of conception.

During the hearings, the issue of what to call the fertilized eggs also arose. A variety of choices ranging from “child” to “pre-embryo” were proposed. The court consulted several medical practitioners and decided that the correct term for the organism from fertilization to 14 days was “pre-embryo (16).” The consideration of the vocabulary and the decision for the appropriate words in such cases further signaled the tendency of the court to not regard the pre-embryo as a person. A doctor who testified in court furthered the belief that the embryos were not considered persons in his assertion that, “at the 8 cell stage, the developmental singleness of one person has not been established (17).” Again, the pre-embryo was not considered a person at this stage in development. The court also looked to rulings in *Roe v. Wade* as well as *Webster v. Reproductive Health Services* as guidelines for the rights possessed by an embryo. Under federal law, the pre-embryo is not entitled to the protection of a person. The Webster case only served to recognize that the state has an interest in a fetus at viability, a developmental phase far from the four to eight-celled pre-embryos under consideration in the case at hand. In light of these previous cases and definitions as given by legal professionals, the court decided that the embryos were somewhere in between being “people” and “property (18).” The discussion in this case tended to view embryos as property rather than as human beings.

The classic case pertaining to the rights of the early embryo is *Roe v. Wade*. The Supreme Court found, after examining the Constitution, that although the word ‘person’ is used multiple times in the Fourteenth Amendment, the term is never defined. Justice Blackmun, who wrote the opinion of the court, also notes that the word ‘person’ is used only in ways that can be applied after birth. The court also commented that scholars in a variety of fields from medicine to philosophy to theology were unable to decide exactly where life began, so the court felt that it was beyond its ability to create an exact moment at which an embryo achieved personhood. However, the court did note that the state did not have any compelling interest in preventing abortion until the end of the first trimester (19).

As ruled under *Roe v. Wade*, abortions are currently legal in the U.S. This legality also helps formulate the argument in favor of stem cell research. Abortions are legal far beyond the blastocyst stage in development, the last stage where totipotent cells are available for use. Pragmatically, if we are to allow women to make this ‘life
and death choice’ for a fetus far into its development, why should women be unable to decide how to dispose of their unused embryos, which already have no potential to become a human being? It is logical that if the embryos are not going to become humans themselves, perhaps some of their properties could be used to improve the quality of life for those who are suffering from any number of illnesses. The legality of ending the life of a fetus is not currently in question, so the legality of furthering scientific knowledge through the use of pre-embryos that have no possibility of implantation seems a much less controversial issue.

There are structural elements in our society besides legal cases that can be used in developing the right of women to donate excess embryos for research. One way of viewing the excess embryos is as cadavers. Once the couple has conceived and borne a child or children using IVF, any remaining embryos are eventually discarded. Even if they were left in a cryogenically frozen state, such embryos would only likely be viable for about two years in storage (20). It is estimated that over 20,000 embryos are currently frozen in storage (21). Only a select few are actually used for implantation. In effect, these embryos have no more potential for life than a human cadaver. It is common practice for both universities and medical schools to use the cadavers for both tutelage and research (22). Federal funding partially supports this research. By equating embryos to cadavers, it seems that stem cell research should also be partially federally funded.

Arguments furthering the rights of a woman to donate unused embryos can be found in the context of a recent US Code. US Code 42 makes several assertions that conceivably support the use of stem cells for research as they relate to the current congressional goals for science and technology. To start, Congress declared that:

(4) Federal funding for science and technology represents an investment in the future which is indispensable to sustained national progress and human betterment, and there should be a continuing national investment in science, engineering, and technology which is commensurate with national needs and opportunities and the prevalent economic situation;

(5) the manpower pool of scientists, engineers, and technicians constitutes an invaluable national resource which should be utilized to the fullest extent possible; and

(6) the Nation’s capabilities for technology assessment and for technological planning and policy formulation must be strengthened at both Federal and State Levels (23).

Relating to these declarations, Congress stated one of its goals to be: “(5) improving the quality of health care available to all residents of the United States (24).” Also contained within this code was the implication that research involving human subjects is currently and will continue to be federally funded (25). If the US Government funds research on human subjects, it hardly seems more controversial to fund stem cell research.

While the quotes above seem to indicate that the embryo does not have status as a person, and that stem cell research seems to be consistent with U.S. Code, the ability of scientists to perform stem cell research is threatened. President George W. Bush, in August 2001, delivered an address on stem cell research that limited government funding to research on the 60 lines of stem cells that are already in existence. Bush stated that for these cells, “the life and death decision has already been made (26).” He thought that he could strike a balance between the need for research and the theological arguments against stem cell research. However, he failed to completely address two main issues. One was that regardless of whether or not the embryos were used for stem cell research, the majority would be discarded. The second point that renders the current policy problematic is that stem cell lines cannot be effective indefinitely. Like all cells (except cancerous cells), stem cell lines tend to ‘peter out’ after some period of time (27). Bush did allocate $250 million for the research on stem cells from umbilical cord placenta, adults, and animals. Unfortunately, these types of stem cells are not as promising as those derived from embryos. Another concerning decision is that while Tommy Thompson, the Secretary of Health and Human Services and one of Bush’s chief consultants, suggested that Bush permit more funding for stem cell research, Bush let his theological views hold more importance (28).

Both for the sake of consistency with current policies and the furthering of scientific knowledge, stem cell research should continue to be legal and that couples should be allowed to choose to donate excess embryos from IVF for such research. Most importantly, however, such research could greatly advance healthcare capabilities and provide options for devastating diseases. The potential for such revolutionary advancement in healthcare provides a cogent reason for governmental funding for such research.

REFERENCES

3. E. Berger, personal communication.
5. E. Berger, personal communication.
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