

Is embryonic stem cell research morally acceptable?

Stem Cell research has created the possibility that treatments can be found for illnesses like Parkinsons, Alzheimers and some cancers. While the researchers have become excited at the prospect of finding cures to these illnesses, there is growing concern among people not connected with the medical profession over the developments, particularly regarding embryonic stem cell research. If the moral issues surrounding the research are to be understood, people outside of the academic community will need to gain a better understanding of them.

The methods used to carryout the research are complex, therefore the technical aspects of these procedures will not be considered in this article. The purpose of the article is to examine the moral and ethical issues relating to embryonic stem cell research. It should be noted that there is stem cell research using adult stem cells from the blood cells of the Umbilical Cord, this is a widely-accepted method of research and a possible alternative method. I will return to this later in the article.

What are embryonic stem cells?

The following is a brief résumé explaining the basic information on stems cells:

Embryonic stem cells have become available for research through the development of In Vitro Fertilisation (IVF) for women who are unable to conceive through the normal natural process. The unused embryos are donated but cannot be used without the consent of the donor. Therefore, the embryos used in stem cell research are either donated from In Vitro Fertilisation embryos (specifically created legitimate fertilisation) or cloned (Cell Nuclear Replacement (CNR)).

The United Kingdom Department of Health explain stem cells as follows: “Stem cells are the very early cells that can develop into almost all other types of cells and tissues. They occur in the early (five-day) embryo when it is a tiny ball of about 100 cells before it implants into the uterus. They can also be found in some adult tissue, e.g. bone marrow, but they can be difficult to isolate. Stem cells hold out exciting prospects for the development of new cell-based therapies. They are already used for some treatments of cancers (bone marrow stem cells) and in early clinical trials in Parkinson’s disease.” (source Department of Health in UK)

Embryonic stem cells are not the only source of stem cells. Adult stem cells can also be used for research, unlike embryonic stem cell, these are not controversial. The National Institute of Health in the USA provide the following explanation of the differences between the two. “Human embryonic

and adult stem cells each have advantages and disadvantages regarding potential use for cell based regenerative therapies. One major difference between adult and embryonic stem cells is their different abilities in the number and type of differentiated cell types they can become. Embryonic stem cells can become all cell types of the body because they are pluripotent. Adult stem cells are thought to be limited to differentiating into different cell types of their tissue of origin.” (Source National Institutes of Health, in USA)

Further information on stem cells research can be obtained from Governmental and the research websites that deal with this subject.

Why is research important?

The subject of embryonic stem cell research has raised moral and ethical concerns, however before considering these we need to understand why the research is regarded as important. The members of the research community have invested a great deal of time and money in embryonic stem cells research technology, but have not yet been able to show that the research will live up to its early promise. Although some progress has been made, there is also research being carried out to find alternatives. The use of skin cells that have been reprogrammed to a near embryonic stage and drugs could still prove to be a safer alternative to treat the illnesses that embryonic stem cell research is seeking to cure.

The National Institute of Health summarises why embryonic stem cell research is important as follows: “There are many ways in which human stem cells can be used in research and the clinic. Studies of human embryonic stem cells will yield information about the complex events that occur during human development. A primary goal of this work is to identify how undifferentiated stem cells become the differentiated cells that form the tissues and organs. Scientists know that turning genes on and off is central to this process. Some of the most serious medical conditions, such as cancer and birth defects, are due to abnormal cell division and differentiation. A more complete understanding of the genetic and molecular controls of these processes may yield information about how such diseases arise and suggest new strategies for therapy.”

The ethical concerns?

The ethical concerns relating to embryonic stem cell research ranges; from, the early embryos should be classed as a person as life begins at conception and therefore should not be used for research; to, they are a ball of cells and nothing more so it is okay to use them. There are also other views which

are in between these opposing opinions. The moral acceptability is based on people's view of when life begins. The scientific research community working with embryonic stem cells naturally think the work is ethically justifiable, but organisations like the Roman Catholic Church and other conservative groups oppose it. There are two key questions; What is the status of the human embryo? What respect does it deserve?

The status of the embryo is therefore a key element for those who object to embryonic stem cells research, central to this debate is the question of when human life begins. The main points that need to be taken into consideration are; does life begin at conception, or when the embryo starts to form on entry to the mother's womb, or when it starts to develop senses or starts to develop into an identifiable child (at about twelve weeks) or when the child can survive as a human being which is normally about twenty-four weeks. (Abortion is allowed up to twenty-four weeks in the UK, but there are cases of children younger than this being born and surviving.)

If the embryo is regarded as the start of human life, then embryonic stem cell research could be regarded as being experimentation on a human being which is not acceptable. On the other hand, if life begins when the embryo starts to develop human senses which are after 14 days and the legal limit for research, then the research could be regarded as acceptable, if it will help cure genetically related illnesses. The 14-day rule was established, "after consulting professional medical bodies, because at about this time there are several ethically significant changes. A scientific way of viewing the embryo in terms of its composition, properties and functions. At the blastocyst stage, a human embryo created by IVF expresses no bodily characteristics, it is not conscious and it cannot feel anything. It could not survive outside the womb. At this point it is not a human person, it is just a ball of cells.

The opposing view have polarised the debate creating a difficult position for those who undergo IVF treatment. The eggs used are donated by a woman who is undergoing IVF treatment. The Catholic Church also opposes this because it is unnatural. Although it is perfectly natural for a woman to want children and IVF does help some women to do this. (This is a subject for a separate discussion.) Those who are treated by IVF go through a very painful procedure to donate their eggs. It would be a natural response for those who have been successfully treated, when approached, to consider donating the unused embryos to research that seeks to help other people. Although some will be concerned that women may be put under unfair pressure to donate the unused embryos.

One problem with the Catholic argument is that without the scientific intervention the embryos would not be created, because the woman undergoing the treatment cannot produce these through the natural process. The embryos are not just cells but they would not develop into a child unless inserted into the woman's uterus or developed by artificial means which is illegal.

The technical aspects of this debate make it difficult for those who do not understand the various complexities to form a view. In the opinion of the writer an embryo created in a scientific laboratory may have the genetic matter to create a human being but until it enters the mother's womb it cannot be regarded as the start of life. Even when one is created by the natural process there is still a great deal of debate about when life begins, however when it does start to develop human senses, it surely can be regarded as the start of a human life. This observation raises a wide range of ethic and moral questions on subjects like abortion which cannot be address here. (see article on my website) So for the writer human life begins when the embryonic cells have developed to the point when they start to develop human senses which is sometime after 14 days. However, the embryo does deserve respect, because it is the start of human life and therefore from a moral point of view brings the validity of embryonic stem cell research into question.

Another completion to the debate is that nobody involved can be sure how the cells would develop after scientific manipulation. Those who have invested large sums of money into embryonic stem cells research are reluctant to halt their work until there are clear alternatives or it becomes clear the research may have been a waste of time and money. If the corporate investment could be taken out of the equation, there may be a willingness by the scientific community to look at developing alternatives.

Could adult stem-cell research provide an alternative to embryonic stem cell research?

The use of embryonic stem cells will probably always be controversial. It is therefore important that a safe ethically acceptable alternative is found. The use of Adult stem cells has for some time been an acceptable possible alternative, and there is also other research being carried out to find other alternatives. A promising source of more mature stem cells for the treatment of disease is, adult stem cells such as haematopoietic (blood cell-producing) stem cells from bone marrow or even from placenta or umbilical cord blood in live births. These cells are already widely used in cancer treatment and in research on treating leukaemia and others diseases.

The development of alternatives could bring an end to embryonic stem cells research, which would reduce the possibility of scientists trying to clone human beings or growing human parts in other animals. Another concern is that some rogue scientists could also use the cloning research for reproductive purposes and to develop eugenics.

The research does have the potential to benefit human kind, but embryos are the start of human life and deserve a moral status which reflects this. The moral dilemma is, do the potential benefits which have yet to be proven, outweigh the ethical reasons cited for stopping all future research. A counter argument is that scientists should do all they can to help find cures for human illnesses.

It appears that there is a growing consensus that embryonic stem cell research will not achieve what scientists in its early development thought it would and that ethically acceptable alternatives are now starting to emerge and should be encouraged. Although IVF is an important development because it helps woman who cannot have children to conceive, but issues surrounding the embryos that are left over is for many a step too far, when there are possible alternatives.

Conclusion

Embryonic Stem Cell research has become a very emotive subject, because many people see it as tampering with the very essence of life. The research also lays the foundation of cloning and human organs being grown on or in other animals as well as of reproductive cloning. These practices are still and hopefully will remain unacceptable. The huge sums of money that have been invested by large pharmaceutical companies has obscured the ethical issues and probably prevented reasoned debate. Those who question the ethics of the research are right to be concerned, because there is no way of knowing how the embryos that have been genetically modified will develop. Embryonic stem cells research is seeking to find ways of altering the very start of a human life. Those carrying out the research believe they are working for the good of human kind, but they can never know how any altered embryonic stem cell will mutate in future generations, so far from being for the good of human kind it could bring tragic consequences.

The lessons from the use of thalidomide which caused substantial problems have not been learned. Science should look for ways to help people with serious illness that have genetic origins, but they need to have ethical conditions of conduct to prevent scientific experiments becoming ethically unacceptable. Embryonic Stem Cell research is a good example of scientific research which is on the edge of being morally acceptable.

Embryonic stem cells research in the early stages of it's development held out great promise of finding cures to illnesses that have genetic origins, but little progress has been made and as time has gone by and people have become aware of the moral and ethical issues it has created, the research has become more morally unacceptable. Now that alternatives have emerged the time has come to reconsider the value of embryonic stem cell research, which in the view of the writer is a morally questionable procedure.

End

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