Embryonic stem cell research and the moral status of human embryos

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Abstract

The paper analyses whether the old problem concerning the moral status or value of human embryos is implicated in the moral evaluation of embryonic stem cell research. It briefly outlines the moral status debate and then proceeds to show that all current attempts to bypass the problem fail.

Keywords: embryonic stem cell research, ES cells, ethics, moral status of embryo

Introduction

The purpose of this paper is to analyse to what degree the old problem of the moral status or value of human embryos is implicated in the moral evaluation of embryonic stem (ES) cell research (in the rest of the paper ‘embryo’ should be read as ‘human embryo’).

The first part of the paper will briefly outline the importance of ES cell research, the impasse that has been reached in the discussion about moral status of embryos, and what the implications might be for the moral evaluation of ES cell research if that evaluation depends on an answer to the moral status question.

The second part will present and outline some attempts to bypass the moral status question in the context of ES cell research and will show why each of them fails.

The third and final part will revisit the moral status question and its implications for ES cell research. While the first two parts of the paper are mainly philosophical, the third part is more pragmatic with a few elements of jurisprudence and politics.

The importance of embryonic stem cell research

ES cell research is potentially very significant, both in the direct therapeutic application of differentiated cells derived from ES cells and in the more basic knowledge about early human development and cell differentiation that is likely to be the result.

The potential therapeutic uses of cell-based therapies derived from ES cells are many. In the near future there may be replacement therapies for diseases involving localized cell loss, like Parkinson’s disease, acute myocardial infarction and diabetes, and in the more distant future cell-based procedures may lead to considerable life extension or perhaps even near immortality.

In assessing the importance of ES cell research it is, however, also important to be realistic. In the same way as we should be realistic in assessing the negative consequences in empirical slippery slope arguments, we should be realistic in assessing positive consequences that are only potential and not yet realized. There are at least two reasons why ES cell research may not turn out to be as important for human therapy as the most expansive forecasts claim. First, for many of the diseases where ES cells might offer a therapy, there are also alternative treatments and/or preventive measures in development (gene therapy, pharmacogenomically derived new chemical entities, nanotechnological solutions etc), and it is likely that they will be the preferred therapy in some instances instead of ES cell-based therapies. It is, for instance, interesting to note that the most expansive nanotech visionaries claim a scope for nanotech medicine and nanotech life-extension that is almost
identical to the scope claimed for ES cell therapy [see the writings of Erich Drexler (1986, 1992, 1999); or the Foresight Institute website].

Second, non-embryonic stem-cell-based research, including research on ES cells from other species, may detect ways of reprogramming adult cells that do not involve turning them into ES cells, but still leave them with sufficient redifferentiation potential to be therapeutically valuable.

The moral status problem

The moral status problem can be stated in the following way.

(i) Human embryos are human individuals.

(ii) Despite this, the moral status or importance of human embryos is uncertain. There are valid arguments supporting the whole spectrum of moral status from full moral status (whatever that means) to no moral status, and many of these arguments across the spectrum are not obviously unsound.

(iii) Certain practices, like the derivation of ES cells, involve the direct destruction of human embryos.

(iv) If human embryos have full (or significant) moral status, their destruction is a significant pro tanto wrong-making feature of these practices; if they have no (or little) moral status, their destruction is irrelevant (or largely irrelevant) to the moral evaluation of these practices.

(v) The determination of the moral status of human embryos is therefore important for the moral evaluation of embryo-destroying practices, including the derivation of ES cells.

The moral status problem has been with us for a long time, at least since the beginning of the modern abortion debate, and has never been fully resolved. Each side in the debate thinks that it has compelling arguments and that it is only because of willful obstinacy, ulterior motives, or simple inability to spot a compelling argument that the other side in the debate has not admitted defeat. Some, on both sides of the debate, also claim moral wickedness in their opponents, but I will not engage with these claims here.

If embryos have full moral status then ES cell derivation is a serious moral wrong and probably impermissible, no matter how great the potential benefits are, whereas if they have none, ES cell derivation for research is a moral imperative even if it turns out that the present predictions of the value of this research are significantly overstated.

Because of the intractable nature of the moral status problem there are numerous attempts to bypass it, i.e. to show that we can reach valid moral conclusions about embryo- or fetus-destroying practices without giving an answer to the moral status problem. The most famous of these attempts is probably Judith Jarvis Thomson’s 1971 paper on abortion, in which she uses her violinist example and several other analogies to argue that abortion is permissible even if fetuses have full moral status (Thomson, 1971).

The technical fix

As mentioned above the moral status problem is actualized by ES cell research because we cannot currently derive ES cells from embryos without destroying the embryos. If a method could be devised to derive ES cells non-destructively in a way that did not affect the survival chances of the embryo, or increase the likelihood of the development of malformations, the moral status problem would not occur. Embryo biopsy from the inner cell mass at the blastocyst stage has been suggested, but it is currently unclear whether this can be done without some loss of embryos (and any loss of embryos will bring the moral status problem back).

This means that even if this or some other ‘embryo-sparing’ procedure might be developed in the future, it does not solve our current problems concerning the moral evaluation of ES cell research.

The spare embryo is not a solution

A number of countries allow the use of ‘spare’ or ‘supernumerary’ embryos for ES cell research, but prohibit the creation of embryos specifically for research. Does this legal regime, depending on a distinction between spare and specifically produced embryos render the moral status problem unimportant? Only if it relies on a sound underlying moral distinction between these two kinds of embryos, and such a distinction is difficult to find, as I and many others have argued (Holm, 1993). Let me briefly rehearse the arguments that are relevant in the present context.

The number of spare embryos is not a natural given, but a manipulable artefact of IVF techniques. Decisions made by the doctors and the commissioning couple or single woman determine how many spare embryos there are likely to be. We could have IVF without spare embryos, although only at the cost of decreased efficiency and considerably larger burdens on the commissioning women. The mere production of spare embryos thereby in itself implies a certain view about the moral status of embryos unless these embryos will be given up for embryo donation when the reproductive project of the commissioning person(s) is complete.

The (pseudo-)Kantian argument (Kant, 1785) that embryos produced specifically for research are produced as ‘a means only’, and spare embryos are produced as ‘ends in themselves’, is also weak since all embryos used in destructive embryo research are used as ‘a means only’ whether or not they have ever been ‘ends in themselves’. If I grabbed a person off the street and performed lethal experiments on her, I would be using her as ‘a means only’ even if she had been considered as ‘an end in herself’ by everyone around her for the last 35 years.

Procreative liberty is not a solution

Can it be argued that the use of embryos in the context of ES cell research falls under a right to procreative liberty, reproductive freedom or reproductive autonomy?

In order to answer this question we need to consider the scope of the right, its strength and its philosophical justification.
Any right has an almost infinite number of possible justifications, and it is impossible to analyse them all here. The strongest justification of the right to procreative liberty is, I think, a combination of two considerations, a positive consideration concerned with the meaning of procreation in human life, and a negative one concerned with the problems that arise if the right is not recognized. Robertson puts the first positive consideration very well in one of his early seminal papers on procreative liberty:

‘Creating and rearing biological descendants is immensely meaningful for individuals and for society. The case for according persons a large degree of liberty in creating and rearing biological descendants is plausible and appealing . . . ’ (Robertson, 1986, p. 956).

The negative consideration focuses on the harm done to people when their procreative projects are restricted, and on the additional harm in terms of surveillance of procreative activities and infringement of other important liberties that many types of restrictions require to be effective.

From the justification, it follows that the scope of the right is restricted to procreative matters, but this is still not a precise delimitation. Proponents of the right generally argue that it has wide scope, and that it also includes a right to participate in research related to procreation, for instance by donating gametes or embryos to research. Here we might note in passing that if this is right, it may generate a reason to limit embryo research to those types of research that are linked to procreation. These would fall under the scope of the right to procreative liberty, whereas other kinds of embryo research would not.

This wide scope in research can be further justified by claiming that it would be bordering on performative inconsistency to allow IVF procedures for instance, but not allow the research necessary to develop and improve the procedures.

Finally we need to decide the strength of the right to procreative liberty; this is not a straightforward matter, but let us for the purposes of this paper accept the analysis of Robertson again:

‘The moral right to reproduce is respected because of the centrality of reproduction to personal identity, meaning and dignity. This importance makes the liberty to procreate an important moral right, both for an ethic of individual autonomy and for the ethics of community or family that view the purpose of marriage and sexual union as the reproduction and rearing of offspring. Because of this importance the right to reproduce is widely recognized as a prima facie moral right that cannot be limited except for very good reason’ (Robertson, 1994, p. 30).

If procreative liberty is as strong a right as Robertson implies, it can presumably override some of the rights an embryo might have, including probably a moderately strong right to life. But even within its most core area, procreative liberty does not make the moral status problem go away, because moral decisions have to be made in situations where procreative liberty is in conflict with other rights. We still need to know if the moral status of embryos includes rights and, if the answer is ‘yes’, what rights and how strong.

But there is another reason to be sceptical about whether reliance on procreative liberty can bypass the moral status problem in the case of ES cell research, and that is that this research may fall outside of the scope of procreative liberty.

Let us first consider the extreme case. A researcher fertilizes an ovum obtained for research, without any connection to a reproductive treatment of the woman in question, with sperm ‘donated’ for research by a paid ‘donor’ and derives ES cells from the resulting embryo; or the perhaps even more extreme case where both gametes have been bought from a gamete supplier.

In this case no reproductive intention is involved and no reproductive consequences foreseen by any of the agents involved in this set of actions. The goal of the procedure is simply the derivation of ES cells. In this case there would be no justification for invoking procreative liberty. What is done has no relation to the meaningfulness of creating and rearing descendants at either the personal or the societal level, apart from whatever relation all medical research has to the meaningfulness of reproduction.

Here it might be objected that we could see the creation of embryos as a deeply meaningful procreative project in itself, and claim that an act of reproduction covered by procreative liberty had taken place as soon as an embryo was produced. This is, however, a rather poor argument if it is supposed to lead to the inclusion of all embryo production under the mantle of procreative liberty, since the only people for whom the production of embryos carries this meaning are those who give embryos high moral status.

The more complicated case is the one where embryos are initially created as a necessary part of a procreative project and later diverted to ES cell derivation. In this case it can be argued that the whole process falls within the scope of procreative liberty, but it can just as well be argued that procreative liberty only covers the first part of the process, and that the use of embryos for non-procreation-related purposes must be justified differently. If I plant and tend a tree as part of an environmental project it does not, for instance, follow that later uses of this tree, by me or others, count as parts of that environmental project.

Finally it is important to note that even if, for the sake of argument, we assumed that the derivation of ES cells was as important an activity as procreation, we would still not get the conclusion that the derivation of ES cells falls within the scope of procreative liberty. It might fall within the scope of some other right or complex of rights or it might be one of the many important activities in society that are not directly protected by any specific rights. The ‘right to scientific freedom’ or the right to conduct scientific research’ will not help us to avoid the moral status problem, since we would again have to balance the moral status of the embryos against the importance of these rights.
The creation lottery and other analogies are not solutions

John Harris (Harris, 2003; Savulescu and Harris, 2004) has suggested that by identifying natural reproduction as a creation lottery, and by showing that some forms of embryo-destroying research are also creation lotteries, we can show that even embryo rightists (i.e., people who believe that embryos have full moral status) have to accept these forms of embryo destruction, if they accept natural reproduction (for a general criticism of this argument see Holm, 2004). In a paper jointly written with Julian Savulescu he defines a creation lottery in the following way:

‘A Creation Lottery involves the creation of a population of embryos for the purpose of creating a new human being and this practice involves the unavoidable death of some of these embryos and the unavoidable production of grossly deformed and disabled human beings’ (Savulescu and Harris, 2004, p. 92).

As with many arguments from analogy, it is however not the analogy itself that does the work, but a parity of reasoning argument based on the analogy (Holm, 2003a). It is because Harris believes that he can show that the embryo rightist cannot point to any morally relevant differences between different creation lotteries, that the embryo rightist’s acceptance of one creation lottery commits him or her to accept (all?) other creation lotteries.

If Harris is right, then we could devise procedures that would make ES cell derivation a creation lottery, and that would thereby make the moral status problem irrelevant.

There are, however, reasons to believe that things are considerably more complicated than Harris makes them out to be.

First we have to note that both Harris and Savulescu have in recent writings invoked a right to procreative liberty along the lines outlined above. But creation lotteries differ with regard to whether and in what way such a right can be invoked, and this creates a potentially morally relevant difference between different kinds of creation lotteries. If procreative liberty is centrally concerned with reproduction, and with the rights of persons to control their own reproductive decisions, then it is not clear that such a right covers further embryo-producing or embryo-destroying activities that are only incidental to the reproductive choice. Or, to put it differently, whereas a strong right to procreative liberty may allow a person to have as many embryos produced and destroyed as is necessary for their reproductive project, the same right may not be relevant at all to embryo production and destruction without a reproductive purpose. We clearly need to define ‘necessity’ in more detail. What we are talking about is not logical necessity, but some kind of practical necessity. Let us, for the sake of argument, assume that it is necessary to produce the number of embryos that gives the procreating person/couple the highest success rate for the chosen reproductive method and the number of children they want, and produces sufficient research embryos to further optimize and develop the method in question. This would still be a finite number of embryos, and it would not be necessary under this conception of ‘practical, procreative necessity’ to produce embryos for other purposes, even if the procreating person/couple wanted to do so. Further embryos produced would therefore not fall within the scope of procreative liberty, or for that matter an analogy to creation lotteries. The mere fact that someone wants something to happen does not make it necessary in any strong sense. Let us imagine someone who said, ‘I want to have a child via IVF, but as part of the process I also want you to produce enough spare embryos so that I can have a nice taste of embryo “caviar”. If you do not produce these spare embryos I will not go through with my procreative project and you will have violated my procreative liberty!’ To claim that this would make it necessary to produce these extra embryos for the stated purpose is (obviously?) false.

This means that a moderate embryo rightist could accept creation lotteries that are necessary for procreation, and reject other creation lotteries, if this distinction is based on the acceptance of a strong right to procreative liberty.

A further complication to the creation lottery analogy is that in a situation where a person can choose among different creation lotteries each leading to the desired reproductive outcome, there is a prima facie reason to choose the one that destroys the smallest number of embryos in the process, if embryos have moral status. If the desired outcome is a child, it is thus only if the ‘child + embryos for ES cell derivation’ creation lottery is likely to destroy fewer embryos than the ‘child’ creation lottery that we should choose the former. Otherwise we would be engaging in innumerate ethics.

The moral status problem and ES cells: a consequentialist solution

We have now seen that the attempts to circumvent the moral status problem all fail. This does not show that some new attempt might not succeed, but I think it unlikely. We are therefore left with the moral status problem. But maybe there is another way around this problem that takes it seriously, but still leads to the conclusion that ES cell research is morally acceptable. What I am thinking of here is a direct consequentialist approach, which, in being consequentialist sees moral status not in terms of rights, but in terms of value. Could we not argue that if the benefits of doing ES cell research are likely to outweigh the harms, including the harms created by destroying a given number of embryos with moral status, then we should do ES cell research?

First we have to note that if our consequentialism is maximizing, as most including classical utilitarianism are, it is not sufficient for moral rightness that an act has net predicted positive consequences, it should be the act among those we can choose that has the largest predicted positive consequences. Whether this is true for ES cell research as a research programme is a complicated question that I deal with in more detail elsewhere (Holm, 2003b,c).

In the context of the present paper I just want to note that pursuing a purely consequentialist route has such undesirable consequences in other areas of research ethics that it may give us good reason to pause before adopting this approach. Pure consequentialist reasoning can, for instance, easily justify research on unconsenting individuals, whether they are competent or not.
Philosophical conclusion and some pragmatic considerations

In this paper I have argued for one main conclusion, i.e. that the moral evaluation of the derivation of ES cells from viable human embryos necessarily involves determining the moral status or value of those embryos. None of the arguments aimed at bypassing the moral status problem are any good, except for creating confusion in the philosophically unwaried.

What are the implications of this conclusion for the societal regulation of ES cell research?

Well, they might be very large, or very minimal. If we believe that our regulation of ES cell research, and all other matters involving embryos, should be consistent with and/or be derived from the correct view of the status of the embryo, then we will either have to wait a very long time for consensus on the correct view to emerge, or we will have to say that the correct view is the view held by the majority, which is a rather disappointing interpretation of ‘correct’.

In both cases we would, however, have to perform a fundamental revision of a whole raft of legislation, to bring it into line with the correct view. To my knowledge, no country currently has legislation that is consistent with any philosophically respectable view of the moral status of the embryo, and it is worth noting that no country has legislation that is consistent with either of the two polar opposites, i.e. that the embryo has full moral status, or that it has none at all.

I submit that such a fundamental revision to consistency is not on the cards in any country, although revisions from one state of inconsistency to another state of inconsistency happens quite often. Policy making is incremental and path-dependent. Where we are now to a large extent decides the likely contents of new policies.

What is therefore likely to happen is a slow, incremental movement, probably towards a more liberal regulation of ES cell research. How far, and how fast, this movement will be in individual jurisdictions depends on many factors, but among these are undoubtedly the ability of the ES cell research programme to maintain its position as the most likely solution to important therapeutic problems. If an old contender like gene therapy suddenly turned out to be successful, or if new contenders like nanotechnology or pharmacogenomically driven pharmaceutics gained momentum, the political incentive to liberalize ES cell regulations might significantly decrease.

References


