

Stem cells—ethics and the debate in Australia

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I expect that most readers were aware of the stem cell debate that continued through 2002. It culminated in the passing of federal legislation that decided the fate of excess human embryos which are stored in assisted reproductive technology (ART) labs around the country. The public debate surrounding the development of stem cell research in our community was often as heated as it was ill-informed. The intense attention given to the legislation debated by the Australian government suggests that our society does not see stem cells as ‘just another medical treatment’. This article aims to help put the ethical debate into perspective.

I want to focus on the ethics of stem cell research. Ethics should not be seen as a poor relation to factual science, but as an intrinsic part of the research method. The Oxford Dictionary defines ethics as “the science of morals, or the principles of human duty”. Ethics may be influenced by cultural factors, but in essence it is a form of rational enquiry that concerns how we should live and what we should do. Medical ethics is actually a branch of philosophy. It is not ordered by gut feelings or consciences, however well informed.

While much of the debate has been fairly superficial and media-driven, we have also heard mention of profound issues raised by the stem cell debate. Our rapidly developing ability to manipulate the unborn is raising ethical questions that we have never previously had to consider. However, while many ethical values are universal, with stem cells there is currently no consensus.

In this paper I will outline the three main ethical positions in the stem cell debate and try to give you an idea of the main areas where ethical concerns have been raised. We will then consider the future of this work.

Three positions on stem cells

I am sure you would have heard about the potential uses for this technology, and I think it is fair to say that no sensible person objects to the idea of stem cell therapy itself. The general opinion is that regenerative medicine has enormous potential that needs to be developed.¹

The main area of contention lies in the source of the stem cells. While there is widespread support for the use of stem cells derived from adults, opinions of the ethics of embryonic stem cell research differ widely.

There are three main positions.

1. The first position is opposition to use of embryonic stem cells. The reasoning is this: If a human person exists from the time of fertilization, then human embryonic stem cell research is unethical. This is because the harvesting of stem cells destroys the blastocyst, the 6 day-old embryo from which it comes. This argument does not apply to adult stem cells, which can be harvested with no lasting damage to the donor.

While the foremost promoters of this position in Australia are from the churches, this is not a religious divide. For instance, there are Jews, Muslims as well as prominent Christians who oppose this position. The other prominent group in this lobby is those interested in human rights. The notion is reflected in a wide range of international ethical codes of conduct. The Council of Europe's *Convention of human rights and biomedicine* from 1997 specifically ensures protection of human embryos from destructive research. Similarly, the Nuremberg Code (1946), the Declaration of Helsinki (1964), UN Declaration on the Rights of the Child (1959), and several other international human rights codes are contravened by the use of human embryos in destructive research.

At home, the *Senate select committee on the human embryo experimentation bill 1985* concluded that 'the embryo of the human species should be regarded as if it were a human subject for the purposes of biomedical ethics'.² The NHMRC's *National statement on ethical conduct in research involving humans* from 1999 gives ethical responsibilities to researchers to minimize any risk of harm to human subjects.

¹ See www.stemcellresearch.org for details.

² *Human Embryo Experimentation in Australia: Senate Select Committee on the Human Embryo Experimentation Bill 1985*, Australian Government Publishing Service, Canberra, 1986, p.28.

The underlying concern is the erosion of respect for humans in our society who are weak and vulnerable.

There is also scientific support: Recent advances in developmental biology also support the argument that the early human embryo is not just a clump of tissue³.

Opponents of destructive research on human embryos do not think they are risking the loss of any medical therapies as they regard the success of adult stem cell research to date as evidence that they are as adequate if not superior to embryonic stem cell treatments.⁴

In summary, this position opposes embryonic stem cell research, but supports adult stem cell research. Generally it is suggested that the excess human embryos in ART clinics be adopted out or allowed to succumb, while improving regulation of ART practice to avoid the further accumulation of excess embryos.

The only way around the human rights documents which prohibit destructive research on humans is to remove early human embryos from the human family. So we come to the next position.

2. The second position is that which supports all stem cell research and destructive embryo research, where informed consent from the relevant parties is obtained. There are two main arguments which support this view. Obviously there are serious biological problems with the idea that the human embryo isn't human. Instead, the early human embryo is regarded as undeserving of protection, on the grounds that it is not an individual, or not a person at that stage. Generally moral status is thought to accrue over time. These are philosophical arguments which I will not explore at this time.⁵ This position also points to other social policies which imply the same notion, such as access to elective abortion and use of post-conception contraceptives. The high rate of natural embryo implantation failure is also used in support of this position.

³ *Nature*, Vol 418, 4 July 2002,p.14-15.

⁴ See www.stemcellresearch.org for details.

⁵ The American President's Council on Bioethics *Human cloning and human dignity: an ethical inquiry* presents a wide range of moral arguments for and against human embryo research. It is available online at <http://www.bioethics.gov/cloningreport/fullreport.html>

Secondly, it is argued that the surplus frozen embryos are going to die anyway, so we might as well use them for science. No moral difference is recognized between killing the embryos and letting them die. This argument has been extremely influential in Australia, but it just looks at the consequences of the research. It does not engage with the act of killing the embryo. Along with the observation that destructive research already occurs in ART labs, it is suggested that the moral interests of the surplus embryos are trumped by the needs of the sick who would benefit from possible therapies developed.

In summary, this position promotes human embryonic stem cell research. Some would say that it is unethical NOT to use the embryos for research, and also support the creation of embryos for research (eg by cloning).

3. The third position is, I think, the most common in our community. According to this position, so long as only surplus embryos are used and informed consent is obtained, it is ethical to engage in destructive research as the embryos are going to die anyway. While the loss of the embryos is seen as regrettable, the benefits of the research justifies their use. This position does not support the creation of embryos for destructive research, either by fertilization or asexual reproduction. Obviously this implies that there is some sort of intrinsic value attributed to the early embryo in this case which is applied inconsistently. And yes, this is an irrational argument.

Apart from debates about the moral status of the human embryo, there are other ethical concerns.

Possible uses of SCNT

Many researchers would like to use SCNT (somatic cell nuclear transfer—this is the technical term for the most common form of cloning) for their work. However, the development of therapeutic cloning technology produces a problem. We know that if you implant an embryo created by nuclear transfer into a uterus, and it develops to term, a human clone would be born. Polls suggest that over 90% of the population is opposed to reproductive cloning. The reasons for this vary, but the big question is: is the slippery slope from therapeutic cloning to reproductive cloning inevitable?

In the United Kingdom it has been decided that bans on implantation are sufficient to stop the slide. However the United States congress has said that it would be

impossible to police such a ban. Embryos are implanted into women's uteruses regularly in ART clinics and it is extremely difficult for even an expert to distinguish between fertilized and cloned embryos. The Australian Parliament passed two acts last year: the Prohibition of Human Cloning Act, and the Research Involving Human Embryos Act 2002. Our legislature has decided that human cloning of any type should be banned, along with other offences listed in the Act. However, the Research Involving Human Embryos Act 2002 allows for the use of excess human embryos from ART clinics where proper consent has been obtained from the persons responsible. This will be possible only for those granted a licence by the Licensing Committee of the National Health and Medical Research Council (NHMRC), the committee also being in charge of the monitoring and compliance with the legislation. At the time of writing, no licences had yet been granted.

There are other objections, such as those of women's rights groups who are concerned over the possible exploitation of women as a source of eggs if cloning goes ahead. Estimates are difficult to predict, but one doctor has suggested that to treat the 17,000,000 patients with Type 1 Diabetes in USA alone would require 850,000,000 eggs.⁶ At several thousand dollars per donation, a lot of financially vulnerable women are potentially at risk.

Commercialisation of human embryonic stem cells

There are several issues here. In the past, researchers have freely shared new discoveries and functioned in networks when seeking similar goals. All that has changed since biotech companies and universities have begun to claim proprietary rights to new developments and found them quite lucrative. There has been a flurry of patents and licensing agreements in recent years. There have been concerns regarding patents which have been issued to cover advances in the research. Some patents have been issued on embryonic stem cell lines which have not yet differentiated (changed into a different type of cell). What will be the outcome of such patents? Will they be a barrier to collaborative research? Should there be a defence for research use within patent law? Who should benefit financially? Is it right to patent nature? Human beings? The Australian Law Reform Commission is

⁶ <http://www.cloninginformation.org>

currently reviewing genetic patents and this may have ramifications for biotech patents generally.

For some people, it is wrong to profit financially from a moral evil, or from trade in human tissue, and there are concerns that commercialization may affect equity in access to benefits once therapies are available. Private investors need to recoup their development costs, but if the government cannot afford to provide new treatments as they become available, is it right that only the wealthy will benefit?

Disability perspectives

There has been an interesting divide in the disability lobby. Those with acquired disabilities have been prominent advocates for embryonic stem cell research (e.g. spinal cord injuries, diabetes, parkinson's). However this view is not shared by all the disabled, especially those with congenital or genetic abnormalities. Apart from concern about the use of the disabled in the debate (politicians threatening loss of cures if we don't agree while wheelchair-bound patients wait at their side), they have suggested that the money would be better spent addressing things like the social needs of the disabled.

The public debate

There have been several complaints about the public debate. The first is not unique to stem cells. A perennial problem in medicine is the exaggerated claims from the media regarding the state of medical research where any break-through in a lab becomes a headline for a cure. Embryonic stem cell research is no exception.

Journalists have promoted embryonic stem cell research with great vigour. There are several reasons for this. The active lobbying has been largely by embryologists, who wisely stick to what they know. They generally do not bother promoting adult stem cell research. They do not need to – it does not involve the destruction of embryos so the scientists are happily carrying on their research without a government bill or press release in sight. Yet adult stem cell research has been responsible for more successful treatments than the embryonic⁷. Surely this non-controversial stem cell option should have been discussed more widely? This has been the feature in many bioethical debates in our society, where the papers promote one (usually the

⁷ See www.stemcellresearch.org

‘progressive’) option, and don’t bother informing the public of the other, usually cautious, yet valid option. But as a society, how can we make responsible moral decisions when we don’t know all the facts?

But are the professionals at fault as well? Dr Curt Civin, editor of the journal *stem cells* is concerned about public perceptions “Have we ... in our enthusiasm, overestimated what we can do in the short run, and unintentionally promulgated science fiction rather than science?” He goes on to conclude ‘moral responsibilities of scientists must be stressed, so that science can exist within society and be wisely and appropriately regulated by society’.⁸

Of course, public debate wasn’t helped by newspapers ‘dumbing down’ the arguments, so that it was presented as a simple choice between benefits for the disabled versus sanctity of life. And there was only brief cover of the parliamentary debate once Iraq hit the news, the latter providing much better copy⁹.

However, when we look at public consultation, the government has given the public opportunities to be heard, for example in submissions for the Andrews Report¹⁰, the NHMRC consultation process in writing the legislation and the senate review committee¹¹. By allowing a conscience vote on the legislation, MPs were forced to think through the issues and conduct a free parliamentary debate—one of the longest in living memory.

Reactions

How have you reacted to the questions I have raised? The embryonic stem cell debate was fundamentally our opportunity to decide what will constitute the characteristics required for a member of the species *Homo sapiens* to be given the protection of the state. Of course the human embryo is human. Both sides acknowledge that. That’s

⁸ *Stem Cells* Vol 18, No6, iv-v, November 2000.

⁹ An exception was made for Prof Trounson’s rat incident.

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Human cloning: scientific, ethical and regulatory aspects of human cloning and stem cell research. House of Representatives Standing Committee on Legal and Constitutional Affairs. August 2001. The Parliament of the Commonwealth of Australia. Canberra.

¹¹ *Provisions of the Research Involving Embryos and Prohibition of Human Cloning Bill 2002.* Community Affairs Legislation Committee. Senate Report, October 2002, Canberra.

why scientists want to use them. The bigger debate is less obvious. Have you given much thought to where all this technology is leading our society?

We all need to think about it. Medicine can no longer decide its own direction. The community is concerned. Legislation has been introduced. The public need to get informed and scrutinize what is happening in our research labs.

Biotechnology is not a science. It is a means of applying science for the benefit of man and society. (Which is another story—technology should fit into our way of doing things, not vice versa). In practice, this means that biotechnology is used to make money.

The changes we experience through biotechnology are part of a larger cultural evolution where, among other things, we see a shift in the way we value living things. Our culture is materialistic. It was inevitable that commodification of the human body and its parts would occur.

The issues I have raised don't have to stop our society from using stem cell therapies to improve our heritage. But it is important that those of us committed to healing and restoring become involved in the community discussion of how we are to use these scientific advances so that market values are not the only ones to prevail. So that boundaries are placed around what is acceptable to us as a society. So our future is one where we see the benefits of our achievements and not the regrets for their misuse.

Post-script

The *Research involving Human Embryos Act 2002* contains no reference to stem cells and no boundaries on the type of research for which embryos are used, as long as it meets the requirements of the act.