Editorial: Stem cell therapy: how should nurses respond?

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The issue of stem cells has been considered before in *JCN* by Cedar (2006) who explained, in an editorial, the potential of this emerging therapy for some diseases that, until now, appear intransigent to pharmacological treatment. To my knowledge, we have not actually published any papers in *JCN* which report the use of stem cells or the nursing issues surrounding the resulting therapies. However, I feel that the time cannot be far away when we will do so. I recently attended a study day at my own university on stem cells which have been in use clinically at the hospital linked to the university for approximately 10 years and which form the basis of several significant research programmes. Stem cells are not without controversy because of the heavy reliance on human embryonic stem cells which raises issues akin to those of the abortion debate: when does life begin and can one life be sacrificed to save another? Surely, nurses who have objections to embryonic stem cell therapy are individually compromised if they participate in embryonic stem cell treatments in the same way as nurses who are opposed to abortion would be. Indeed, nurses who are opposed to abortion are not obliged to participate in abortive procedures.

**Biology and ethics**

It struck me, while listening to the various speakers at the stem cell study day, that this was one area where an understanding of the biology of stem cells was essential to an understanding of the legal and ethical issues that surround them. It is easy to institute ‘knee jerk’ reactions to stem cell therapy and understanding that all stem cells are not embryonic seems to be fundamental to appreciating the potential of stem cell therapy. It is hard to imagine ethical objections to the use of non-embryonic stem cells but the very notion of growing one thing from one person and using it on another does conjure up horror stories in some people’s minds. The same issue applies to the closely related are of cloning but much of this is the result of the way these matters are reported in the popular press.

The reason embryonic stem cells are so attractive is that they are simply the best biological material from which to make other types of cells; in the earliest stages of development, following fertilisation, they are ‘totipotent’: any single embryonic cell is capable, theoretically, of producing the whole range of body cells. Once differentiation has taken place – whereby cells become specialised for their functions in the developed organism – they lose this ability. Nevertheless, some cells in the adult organism are clearly capable of developing into others. For example, the blood and the skin have considerable and continuing efforts to immortalise cells: the age of a cell can be gauged from the length of a section of chromatic material in the cell nucleus called the telomere. Telomeres become shorter as cells age and, in fact, it may be the telomere length that controls the ageing of cells. However, simply maintaining the length of telomeres is not a solution to the problem of cell mortality. The classic example of cells which are immortal and in which telomeres length is maintained is cancer cells. Therefore, in addition to inducing immortality in cells, the issue of the extent to which the mortality and differentiation of cells also arises: it is notoriously difficult, selectively, to kill cancer cells and cancer cells are not properly differentiated like normal somatic cells and are not useful to the body.
Therefore, in addition to understanding the inherent value of human embryonic stem cells, an understanding of just how hard it is to develop suitable alternatives helps to understand the pressure that scientists and doctors are under to use them and the pressure governments are under to allow their use. Nevertheless, understanding these pressures and even accepting them does not obviate the fundamental ethical issue which is that for human embryos to be produced human eggs need to be fertilised and – as *in vitro* fertilisation and the phenomenon of ‘test tube babies’ demonstrates – these embryos are capable, if successfully implanted, of life in and beyond the womb. Those who advocate the use of human embryos do not deny these ethical problems but either disagree with objectors on when human life begins or, if they agree that human life begins at conception, argue from a utilitarian perspective that the outcome of an action determines its moral worth: embryos may be sacrificed but human suffering may be alleviated by the resulting therapies.

It is not my intention in this editorial to argue the worth of moral perspectives – although I welcome editorials, commentaries and scholarly papers on this issue – but it is my intention to point out that not every nurse who encounters stem cell therapy, either administering it or caring for people who have received it, will be in favour of using human embryos. My questions are: how should they react? how should they be treated if they have objections? is nursing education preparing them adequately to understand and weigh up the issues?

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