Stem cell therapy

Science, Biology

Stem Cell Therapy Outline Introduction to stem cell therapy entails Body Researches in stem cell therapy Cloning Controversies in stem cell therapy Dolly

Conclusion

Summary of stem cell therapy

Stem cell therapy involves the introduction of a new adult stem cell into a destroyed tissue so as to replace diseased parts of the human body. It remains as a new form of treatment currently under research and has solicited scrutiny over the past years due to speculations that it could change treatment of many diseases. A stem cell is undifferentiated cell with the potential of differentiation into many types of organs and tissues (Conrad, 2012). Stem cell therapy operates on the basis of using undifferentiated cells to cure various diseases through them differentiating to new tissues and organs thereby repairing and healing the diseases organs and tissues.

Some stem cell researchers have advocated for the therapy in treating diseases like diabetes mellitus, Parkinson’s disease, ulcerative colitis, Duchenne muscular dystrophy, multiple sclerosis and other myopathy, hematopoietic organ diseases, oncological diseases, some hereditary and genetic abnormalities (Conrad, 2012). Some success rates in stem cell therapy exist in the field of oncology where cancer patients subjected to chemoprophylaxis may at one point require bone marrow transplantation or umbilical blood stem cells. Chemoprophylaxis in cancer patients often results in the destruction of cancer cells plus even hematopoietic cells. Stem cell often helps them in restoring their normal blood cells increasing their

chances of survival from the disease.

Therapeutic cloning is a type of stem cell therapy. Cloning is possible through the use of embryonic stem cells. Here, an egg gets denucleated, that is, the DNA gets removed, and replaced with a somatic cell nucleus. The egg gets stimulated through the use of an electric pulse, and a blastocyst gets formed to provide stem cells that are identical to those of the original somatic cell nucleus. If implanted in the womb, the replicated embryo can be born as a cloned baby. It is through this process that Dolly the first cloned sheep was created (Conrad, 2012).

Embryonic stem cell suitability for transplantation has recently been in question because of the instability of the cloned cells. Dolly, for example, gave an outward impression of full health but had many genetic defections (Wimmer 3). The process of therapeutic cloning is ineffective. A high percentage of clones die before or soon after birth with a success rate of between 3 to 4% (Conrad 2012).

In as much as there have been a number of progresses in stem cell therapy, there are still a number of controversies regarding the issue. Controversies majorly emanate from the methods used in getting the stem cells (Conrad, 2012). Sometimes, stem cells get derived by destruction of blastocysts. Hence, due to ethical, moral and cultural issues, many people tend to object the establishment of this form of therapy in many countries.

Stem cell therapy is often expensive and only few people that can afford it get it. In addition, the treatment method is still under research to evaluate the effect of transplanting the stem cells and the aftermath of it in various individuals. In Dolly’s case, for example, 277 fused cell got created, with only

29 being viable for transplantation. Out of the 29, only one lamb survived. The whole procedure cost was approximately $750, 000 in 1996 (Wimmer 20). The current cost of stem cell therapy is now greater than this. The therapy often becomes faced by challenges of getting less government funding and increased opposition of many individuals (Conrad 2012).

In conclusion, stem cell therapy can offer tremendous use in the field of medicine through the use of undifferentiated stem cells that grow into various organs and tissues. Currently, there are a number of diseases that employ the use of stem cell therapy and have shown some success rate (Conrad, 2012). In as much as stem cell therapy proves to be a potential therapy for some incurable diseases, some ethical and moral controversies are attached to it.

References

Conrad, A. (2012). Stem cell Therapy. Journal of Stem Cell Research and Therapy, 7 (12) 23-45.

Wimmer, T. (2008). Cloning: Dolly the Sheep. New York: The Creative Company.