Stem cells: Promise to cure?

Since time immemorial the advent of science has proved to be a boon in altering the life of human beings. The natural instinct of wisdom and intellect in man has proved his supremacy and dominance over the other creatures on the earth. Man ventured on stormy seas as well as deserts to explore the probabilities of existence of new lands. He also discovered that the earth is round and it revolves around the Sun. Man has made various discoveries and inventions. Some of them pertained to the laws of gravitation, discovery of electricity, invention of telephone, mobile, telex, computer, Internet etc. therefore his life became comfortable and luxurious. These inventions shrunk the world and man felt well connected globally even with far off places. At the same time he never lagged behind in making significant inventions in the field of science and technology for the betterment of mankind. In Medical and Health Sciences, the impact of science and technology has inarguably been more significant than ever. New discoveries and inventions have opened up newer possibilities of treatment and prevention of human sickness, so far the diseases that were once instant death sentences like cancer and HIV/AIDS, which are still potentially fatal but a little less horrifying.

In recent years a handful of discoveries have provided glimmers of hope for both effective and affordable health care. One such invention which has changed the fundamentals of research is of stem cells. Probably no area of research has fired the public imagination and ignited the public controversy as much as stem cell research. Stem cells are cells found in most, if not all, multi-cellular organisms. They are characterized by the ability to renew themselves through mitotic cell division and differentiating into a diverse range of specialized cell types. It has been proved that stem cells can now be grown and transformed into specialized cells with characteristics consistent with cells of various tissues such as muscles or nerves through cell culture.

Highly plastic adult stem cells from a variety of sources, including umbilical cord blood and bone marrow, are used in routine medical therapies. Embryonic cell lines and autologous embryonic stem cells generated through therapeutic cloning have also been proposed as promising candidates for future therapies. European researchers genetically manipulated bone narrow cells taken from two-7 year old boy and then transplanted the altered cells back into boy and apparently arrested the progress of a fatal brain disease. Now scientists can make embryonic like stem cells directly from skin cells, which make it possible to model a multitude of human diseases. New drugs based on stem cells are being developed and the first human clinical trial based on product stem cells is being ventured.

Medical science has tremendously improved and now researchers adopt more ethical methods for stem cell study. Induced Pluripotent Stem Cells (IPS) is the most popular method in use these days for stem cell research. The IPS is synthetically derived from adult somatic cells. The new research involving stem cell has come a long way with the use of IPS which does not involve destroying of embryos for research and therefore is a more acceptable technique. The research involves study of basic cells that have the potential of developing other cells which would not grow of their own.

There is a reason to believe that stem cell research has the potential to cure numerous medical and dental problems. These problems vary and as of now medical science has only been able to control the symptoms and not the disease. If the research goes the right way then there is a possibility of advanced treatments available that would cure diseases such as Alzheimer’s disease, Parkinson’s disease, Type 1 Diabetes, Heart disease and Stroke, Injuries to the spinal cord, Congenital defects, Repair or replacement of damaged organs such as kidney, liver and spleen, lessen the risk involved during transplantation and in finding a cure for cancer.

Research must continue in view of the probability of the advantages higher than the concerns. It is good if research can bring about treatments and cures to be used for betterment of human kind. Stem cell research pros and cons will continue to be argued over until there is some positive outcome.

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