Introduction

Stem cells are a unique cell population capable of self-renewal and differentiation into different cell lines. Stem cell therapy is a new approach in medicine and part of a new medical branch called "Regenerative Medicine. ***(Sell S., 2004).***

There are two important types of stem cells; they are the adult stem cell (ASC) and embryoinc stem cell (ESC). ASC has already proven its great value, and are used in a number of fields with extreme success. Indeed, adult stem-cells have long been used in the treatment of hematological malignancies. On the other hand, many scienctists belive that ESC might be a future solution to most of human disease ***(Gardener R., et al., 2006).***

Of all the new biological technologies, none has been more controvesial than stem cell therapy. Creation of human embryos for the sole purpose of providing stem cells hav been extremely condemned and banned in most countries. The goal of the intense research on stem cells is for human application. Recently, knowledge of stem cells has progressed rapidly and experimental therapies are already in clinical trials ***(Khurdayan V., 2007).***

Applications of stem cells include many fields of medicine such as cardiology, neurology, hematology, hepatology, immunological disease, diabetes mellitus and as cell models for drug trials. In the field of hepatology, liver transplantation is the only available therapy of end stage liver diseases and there is an ever increasing shortage of donor livers ***(Gupta S. et al.,2004).***

Stem cells turning into hepatocytes by transdifferentiation introduce new functioing liver cells into a diseased organ, which can support intrinsic liver regeneration or bridge the time gap until a definitive treatment is available . Transplantation of hepatocytes or hepatocyte-like cells of extraphepatic origin is a promising strategy for treatment of acute and chronic liver failure. Many researches have focused their efforts on cirrhosis, in particular. Chronic liver disease is one of the common diseases all over the word. In Egypt, because of the high prevalence rates of hepatitis C, this condition has turned to be a major health problem ***(Al-Garem M., et al., 2008).***