Introduction

End stage liver disease (ESLD) is a health problem worldwide**.** Liver transplantation is currently the only effective therapy, but it has drawbacks include a shortage of donor**,** operative damage, risk of rejection and in some cases recidivism of the pretransplant disease, this factors account for the recent growing interest in regenerative medicine ***(Lorenizi S et al., 2008).***

The most common cause of the liver diseases now in Egypt is chronic viral hepatitis**.** Because of high prevalence rate of hepatitis c virus (HCV) in the general Egyptian-population (up to 14%)**.**HCV is considered the major risk factors for cirrhosis**.**HCV antibody was positive in 64% of cirrhotic patients ***(Hassan et al., 2001)*** and in more recent study it has reached to 87.9% ***(El-Zayadi et al.,, 2005).***

Up to 40% of the patients with liver diseases are asymptomatic**.** In these individuals, cirrhosis may be discovered during routine examination or at autopsy ***(Friedman and Schiano, 2004).***

There is huge demand for liver transplantation but there are never enough organs and the procedure is not always successful we are hoping in the future we can use the bone marrow or umbilical cord blood stem cells from matched donors to help in treatment of liver disease and reduce the need for liver transplant ***(Hunter D,2003).***

Stem cells are cells that are capable of self-renewal and are multipotent, i.e**.,** they can differentiate into many specific cells ***(Smith et al., 2006).***

There are two types of the stem cells**:**

- Haematopiotic stem cells which give us all types of blood cells in the body (blastocyte)**.**
- Bone marrow stromal cells which are mixed cell population that generate (bone, cartilage, fat and fibrous connective tissue) and such this type used for the therapy of end stage liver disease ***(Toma J et al., 2001).***

In recent years , numerous reports described the generation of 'hepatocyte ' or hepatocyte like cells from various types of exterahepatic stem or precursor cells ***(Nussler A et al.,2006).***

Experiments have sought to identify an optimal source of stem cells, sufficient to gernerate large amount of hepatocytes to be used in bioartificial livers or injected in vivo to repair the diseased liver ***(Lorenizi S et al., 2008).***
Adult stem cells offer a great promise in medicine as they generate the full spectrum of cell types needed to repair a damaged organ ***(Thomason JA et al., 1998).***

Mesenchymal stem cells derived hepatocytes and mesenchymal stem cells transplanted by either intrasplenic or intravenous route, engrafted recipient rescued liver failure, intravenous transplantation was more effective in rescuing liver failure than intrasplenic transplantation ***(Kuo TK et al., 2008).***

Stem cell technology represents a huge hope forward in treating many diseases particularly liver disease**.** It has been seen that stem cell technology really helps in therapy of end stage liver disease**.**

Research on hepatic stem cells has entered a new area of controversy**,** excitement and great expectations**.** Stem/progenitor cells from fetal liver have been successfully isolated and transplanted, repopulating up to 10% of normal liver ***(Malhi et al., 2002).***