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Autologous Bone Marrow stem cell Infusion (AMBI) therapy for Chronic Liver Diseases

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Background:

Liver Cirrhosis is the end stage of chronic liver disease which may happen due to alcoholism, viral infections due to Hepatitis B, Hepatitis C viruses and is difficult to treat. Liver transplantation is the only available definitive treatment which is marred by lack of donors, post operative complications such as rejection and high cost. Autologous bone marrow stem cells have shown a lot of promise in earlier reported animal studies and clinical trials. We have in this study administered in 22 patients with chronic liver disease, autologous bone marrow stem cell whose results are presented herewith.

Materials and Methods:

In 22 patients with chronic liver diseases of Child B-C category, Autologous Stem Cell has been transfused, upon getting approval from the ethics committee and informed consent. Under short GA, 200-300ml of bone marrow was tapped. The bone marrow stem cells were isolated using density gradient fractionation

method and processed, suspended as per protocols earlier published (Terai et al., doi:10.1634/stemcells.2005-0542).The processing was done in cGMP facility under stringent aseptic precautions. Endotoxin test clearance was obtained (<0.25EU) and CD34+ analysis was performed using FACS. A cell count of 240 to 1068 X 10⁶ was administered intravenously through the median cubital vein. Liver function tests, ultrasound and CT were performed before the administration, thereafter at 4 and 8 weeks of infusion. The protocols used were the same as used by Terai et al., Yamaguchi University, Japan.? Acites, albumin, bilirubin, radio lucency of liver and overall quality of life were studied in all these patients. Liver biopsies were not done due to lack of patient compliance. Standard work up of chronic liver disease by viral marker, copper, Alfa Feto Protein etc., were performed.

Results:

The administration of the transfusion did not have any adverse reactions in the patients. 67% of patients showed an increase of serum

albumin that was significant, 73% showed significant reduction of ascites, 32% showed drop in bilirubin. The overall quality of life of index (QULI) was significantly improved in 82% of the patients.

Conclusion:

Autologous bone marrow stem cells administered in chronic liver disease patients has yielded significantly good results and has been safe. Although a pilot clinical trial, the study shows promises for newer exciting cell based therapies for chronic liver disease.

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