One-year follow-up result of autologous bone marrow cell infusion in patients with advanced liver cirrhosis

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Background/Aims: Liver cirrhosis (LC) is the end stage of chronic liver disease and is very difficult to treat. Although recent studies, related to role of bone marrow cells (BMCs) for regeneration or fibrosis in liver fibrosis/cirrhosis animal model, suggested conflicting results, human clinical trials of BMC infusion for cirrhotic patients showed positive results (Esch et al. 2005; Sakaida et al. 2006). The aim of this study was to evaluate the 1–year effect of autologous BMC infusion (ABMI) on liver in patients with advanced LC. Methods: Patients aged between 18 and 75 and had a clinical diagnosis of advanced LC (Child–Pugh class B) with total bilirubin of less than 3.0 mg/dl, a platelet count of more than 50,000/uL, and no viable hepatocellular carcinoma on magnetic resonance imaging (MRI) were included. Autologous BMCs were harvested from the ilium under general anesthesia, and infused into peripheral vein after RBC depletion and mononuclear cell concentration. Serologic test, transient elastography, MRI, and biopsy were performed before and 1, 3, and 6 months after the procedure. Patients’ qualities of life were surveyed by questionnaire. Serum markers for liver fibrosis was checked. Results: Eight patients were followed up for 1 year. The mean age of the patients was 55 years (range 43~64 years). Mean infused mononuclear cell number was 7.7×10⁹. Serum albumin level was increased significantly at 3, 6, 9, and 12 months after ABMI (p<0.05). Other serologic tests showed no significant changes. Ascites of patients were improved or disappeared in spite of stopping oral diuretics or reducing the requirement. All the patients showed improvement of symptoms and quality of life. In biopsied tissue, increased number of progenitor cell was noted for 6 months after ABMI. Some patients showed liver volume increment by MRI. There was no serious adverse event. Conclusions: ABMI for advanced liver cirrhosis improved serum albumin level, subjective symptoms, and number of progenitor cells in liver. ABMI in selected patients can be used as a bridging modality for the treatment of decompensated LC.