Influence of plasma exchange on transplantation related immune function in patients with liver failure

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ABSTRACT. This study aimed to evaluate the influence of plasma exchange (PE) treatment of patients with liver failure on the patient’s immune function, including peripheral blood T lymphocytes and cytokines. Patients accepting PE for liver failure from October 2011 to February 2012 were included prospectively in the research group. Peripheral blood samples were collected at set time points. The percentages of T lymphocyte subtypes were detected by flow cytometry using different fluorescence labels including CD3-FITC, CD4-PerCP, CD8-PE, CD25-FITC, and Foxp3-PE. Changes in serum IL-17 concentration were followed by ELISA. In all fifteen patients who accepted PE, the percentages of CD3+ and CD8+ T cells increased immediately after the procedure and then reduced gradually. These significant changes were confirmed by statistical analysis (P < 0.05).
The percentage of CD4+ T cells also increased after PE to a certain extent, but failed to show statistical significance. The positive ratio of CD4+CD25+Foxp3+ T cells (Treg) increased after the treatment with statistical difference (P < 0.05). The concentration of IL-17 in patient serum increased significantly following PE treatment (P < 0.05). These results demonstrated that T lymphocyte subgroups of patients with liver failure could be influenced after PE treatment, and that cellular immunity could be recovered. PE treatment, therefore, can be viewed as providing reliable protection for the reconstruction of the patient immune system.

**Key words:** Artificial liver; Plasma exchange; Cellular immunity; CD4+CD25+ regulatory T cells; Interleukin-17