Effect of lower-extremity bypass surgery on inflammatory reaction and endothelial dysfunction in type 2 diabetic patients

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Abstract

Diabetes mellitus (DM) is a metabolic disorder characterized by hyperglycemia and dyslipidemia. The abnormalities in nutrient metabolism and elevated inflammatory mediators resulting from DM lead to impairment of wound healing and vulnerability to infection and foot ulcers. Diabetic lower limb ischemia often leads to limb necrosis. Lower extremity bypass surgery (LEBS) is indicated to prevent limb loss in patients with critical leg ischemia. This study investigated the alteration of inflammatory and endothelium dysfunction markers before and after LEBS in DM patients. Twenty one type 2 DM patients with LEBS were included. Blood was drawn before and at 1 day and 7 days after surgery in the patients. Plasma soluble cellular adhesion molecule levels and blood leukocyte integrin expressions were measured. Also, plasma concentrations of endothelin-1 and nitric oxide were analyzed to evaluate the vascular endothelial function. The results showed that there were no significant differences in plasma cellular adhesion molecules, endothelin-1 and nitric oxide levels, nor did any differences in leukocyte integrin expressions before and after the operation. These results suggest that the efficacy of LEBS on alleviating inflammatory reaction and improving endothelial function in DM patients was not obvious.