Neurological complications contribute significantly to morbidity and mortality of patients after orthotopic liver transplantation (OLT). One possible cause of postoperative neurological complications is cerebral ischemia during the surgical procedure. In this study, we investigated the relationship between intraoperative changes in regional cerebral oxygen saturation (rSo(2)) and postoperative values of neuron-specific enolase (NSE) and S-100, which are specific variables that indicate cerebral disturbances due to hypoxia/ischemia. The rSo(2) was monitored continuously by near-infrared spectroscopy in 16 patients undergoing OLT. In addition, NSE and S-100 were determined in arterial blood before surgery and 24 h after reperfusion of the donor liver. Interestingly, clamping of the recipient's liver led to a significant decline in rSo(2) in eight patients, whereas the others tolerated clamping without major changes in rSo(2). The decrease in rSo(2) after clamping correlated significantly with postoperative increases in NSE (r(2) = 0.57) and S-100 (r(2) = 0.52). However, there were no significant differences between patients with and without rSo(2) decline concerning hemodynamic variables. There were no significant correlations between DeltarSo(2) and cardiac output (r(2) = 0.20), NSE and cardiac output (r(2) = 0.37), or S-100 and cardiac output (r(2) = 0.24). Monitoring of rSo(2) may be a useful noninvasive tool to estimate disturbances in rSo(2) during OLT ¹.

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