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## Outcomes Of Adult Living Donor Liver Transplantation For Acute Liver Failure; A 15-Year Experience In A Single Center

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**Background** : Liver transplantation (LT) is only life-saving treatment for patients with irreversible acute liver failure (ALF). However, so far still, LDLT in ALF patients has been hesitant due to concerns about donor safety and recipient outcomes, and data are limited accordingly. The purpose of this study was to describe the experience in adult living donor LT (LDLT) for ALF and evaluate the role of LDLT in ALF by comparing the surgical and survival outcomes with deceased donor LT (DDLT).

**Methods** : We retrospectively reviewed the medical records of consecutive 267 patients (161 LDLT recipients, 106 DDLT recipients) aged 18 years or older who underwent LT from January 2006 and December 2020.

**Results** : Mean period from hepatic encephalopathy (HEP) to LT was 5.85 and 8.35 days for LDLT and DDLT recipients, respectively ( $p=0.091$ ). Among 267 patients, 121 patients (45.3%) had grade III or IV HEP (LDLT: 34.8% vs DDLT: 61.3%;  $p<0.001$ ) and brain edema was identified on brain CT in 38 patients (14.2%) (LDLT: 16.1% vs DDLT: 11.3%;  $p=0.269$ ) before LT. There was no significant difference in in-hospital mortality (LDLT: 11.8% vs DDLT: 15.1%;  $p=0.435$ ), and no difference was detected regarding 10-year overall (LDLT: 90.8% vs DDLT: 84.0%;  $p=0.096$ ) and graft (LDLT: 83.5% vs DDLT: 71.3%;  $p=0.051$ ) survival. In multivariate logistic regression analyses, the factors associated with in-hospital mortality were vasopressor requirement (odds ratio [OR] 3.40, 95% confidence interval [CI] 1.45-7.96,  $p=0.005$ ) and brain edema (OR 2.75, 95% CI 1.16-6.52,  $p=0.022$ ) at the time of transplant. Living donor was not independently associated with in-hospital mortality ( $p=0.553$ ).

**Conclusions** : LDLT is acceptable option of treatment for patients of ALF with high grade HEP. In particular, when a ALF patient with HEP has an available living donor, performing urgent LDLT before brain edema develops can benefit the patient's survival.

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