



ABST-0365

Comparison Of Clinical Outcomes Using The Left And Right Liver Grafts In Adult-to-adult Living Donor Liver Transplantation: A Propensity Score-matched Analysis Using The KOTRY Database

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Background : Adult-to-adult living donor liver transplantation (LDLT) has been increasingly performed as an alternative to the scarce liver grafts from deceased donors. When it comes to choosing a liver graft, many centers still prefer to choose the right lobe graft (RLG) although both RLG and left liver graft (LLG) meet the volumetric criteria. We compared the clinical outcomes of donors and recipients between LDLT using LLGs and RLGs.

Methods : This study analyzed data from a retrospective, multicenter observational cohort using the Korean Organ Transplantation Registry between 2014 and 2021. A total of 4,601 patients who underwent adult-to-adult LDLT were enrolled in this study. After excluding 57 patients using dual and sectional grafts, 4,544 patients were included for a propensity score matching analysis. The median duration of follow-up was 29 months.

Results : Before propensity score matching, 142 (3.1%) patients received LDLT using the LLG and 4,402 (96.9%) using the RLG. After matching, 62 recipients were included in each group for analysis. In the volumetric analysis, the graft-to-recipient body weight ratio was comparable between the LLG and RLG groups (0.90 [0.42–1.89] vs. 0.92 [0.44–1.42], $P=0.968$). The LLG group showed a significantly higher future liver remnant for donor than the RLG group (67.0 [59.0–75.0] vs. 36.0 [25.0–49.0], $P<0.001$). In donor outcomes, the incidence of overall and major complications was comparable between the LLG and RLG groups ($P=0.491$ and 0.680). Surgical mortality in donors did not occur in both groups. In recipient outcomes, major complications, hospital stay, and mortality were not significantly different between the groups ($P=0.680$, $P=0.717$, and $P=0.680$). The 5-year overall and graft survival rates were comparable between both groups (83.3% vs. 88.2%, $P=0.564$ and 81.9% vs. 85.2%, $P=0.778$). The type of graft did not affect the overall and graft survival ($P=0.566$ and 0.779).

Conclusions : In adult-to-adult LDLT, RLG is still used extremely more than LLG. However, this study demonstrates the comparable short-term and long-term outcomes of donors and recipients between the LLG and RLG groups. If the LLG satisfies the volumetric criteria for recipients, LLG is worth considering more actively than in current practice.

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