Impact of extended living donor criteria on donor safety in living donor liver transplantation

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Background: Donor safety is primary concern during living donor liver transplantation (LDLT) and most transplant centers accept strict selection criteria although some centers have been trying to modify these strict criteria to expand donor pools. Herein, we describe the experience of Daegu Catholic University Medical Center for extended living donor criteria for LDLT focusing on donor safety.

Methods: We retrospectively reviewed the outcomes of 424 living donor right hepatectomy (LDRH) including 105 donors under extended criteria at our institution from January 2010 to June 2019. Extended donor was defined with criteria as follows: old donor (age >40 years) with remnant liver volume of <35%; young donor (age ≤40 years) with remnant liver volume <29% and minimal fatty change (<15%); and young donor with mild hepatosteatosis (15%–30%) and remnant liver volume of <35%. The outcomes in extended living donors were compared with those in living donors under conventional criteria focusing on donor safety. We also analyzed risk factors related to posthepatectomy liver failure (PHLF).

Results: PHLF occurred in 43 donors (10.1%) and most cases were grade A except one case in conventional donor group (grade B). PHLF did not occur more frequently in extended donor group (7.6% vs. 11.0%, $P=0.32$) and the incidence of major postoperative complications did not differ between the two groups. Moreover, no difference in either posttransplant graft function or survival was apparent between the two groups. In multivariate logistic regression analyses, only the event for major complications (odds ratio, 3.002; 95% confidence interval, 1.042–8,649; $P=0.042$) was associated with PHLF but not related to extended criteria.

Conclusions: LDRH under our extended criteria could be performed to expand donor pools without adverse effects on donor safety.

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