

Weight Reduction Of The Donor In Hepatic Steatosis For Living Donor Liver Transplantation As A Tool In Expanding The Donor Pool

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Background : The obesity epidemic worldwide has made it increasingly common to encounter liver steatosis in the living as well as deceased donor candidate. The aim of our study was to review our experiences with right lobe(RL) adult living donor liver transplantation in donors who donated liver after confirming improvement of fatty liver through weight reduction(WR) and to investigate the feasibility, efficacy, and safety of using such donors on the donor, graft and recipient outcomes.

Methods : From January 2015 to December 2020, 150 living donors(LDs) donated RL after confirming improvement of hepatic steatosis through WR at a single center. We performed matching using a greedy method to compare the outcomes of the donors and recipients of this group to those of LDs with no WR.

Results : 150 patients in the WR group lost BW through diet and exercise for 113 (78 – 184) days for improvement of hepatic steatosis. The median (IQR) body weight gap from first visit to the operation in the weight reduction group were -13.22 (-16.58 – -11.49) kg, and BMI were significantly reduced (27.8 ± 3.9 kg/m² vs. 23.8 ± 3.1 kg/m², $P = < .0001$) A notable result was the difference in graft volume (GV) gap between estimated GV and real GV (WR group vs no WR group; -18.5 ± 93.3 vs -124.9 ± 148.9 , $P = < .0001$) . Post-operative complications in the WR group were significantly different compared to no WR group with a P-value of 0.0102 before matching, but were not statistically different after matching ($P = 0.3185$). The patient and graft survival rates of recipients in WR group showed no differences compared to donors with no WR group.

Conclusions : The appropriate short-term WR in potential living liver donors is an effective tool to expand the donor pool, enabling not only the conversion of marginal donors to low-risk donors, but also the transition from ineligible donors to eligible donors. However, since a decrease in liver volume due to BW reduction can affect graft-to-recipient weight ratio (GRWR), preoperative reevaluation is necessary in patients with expected marginal GRWR.

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