Accuracy between estimated graft volume and actual graft weight in living donor liver transplant

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Background: In the living donor liver transplant (LDLT) one of the preoperative evaluation stage is the calculation of graft-recipient-weight ratio (GRWR) and remnant liver volume. According to the Başkent criteria, the remnant volume should be at least 40% and the GRWR should be at least 1% in order to minimize postoperative complications and achieve the highest graft functions. We aimed to determine the accuracy of pre-operative computed tomography (CT) graft measurements with actual graft weights in LDLTs in our centers.

Methods: Since 1988, 692 liver transplants have been performed by our team. Of these 692 liver transplants, 480 were LDLTs. Preoperative CT images and intraoperative graft weights were analyzed retrospectively.

Results: Two hundred seventy (56.3%) of 480 donors were female and 210 (43.7%) were male. The mean age of donors was 44±8.5 years. The mean weights of donors was 76±12.5 kg. Of the donor hepatectomies, 47.1% (n=226) were left hepatectomy, 31.7% (n=152) right hepatectomy and 21.2% (n=102) left lateral hepatectomy. The mean total liver volume of donors measured by CT was 1,555.41±235 cm³. The mean graft volume was 519.41±250 cm³ and the mean graft weight was 507.37±242 cm³. When we measured the graft weights during surgery, we found that its ratio to the volume measurements made radiologically was 1.03. Remnant liver volume in donors was 64.28%±15.7% of the total volume.

Conclusions: Preoperative radiological assessment of the donor's liver is very important to prevent postoperative complications and to perform successfully living related liver transplant. Otherwise, small-for-size or large-for-size may occur in the recipient and liver failure in the donor.

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