Topic : Liver

EXTENDED INDICATIONS FOR ROBOTIC DONOR RIGHT HEPATECTOMY: RISK FACTOR ANALYSIS AND SURGICAL STEP-BASED RECOMMENDATIONS

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Background : Robot donor right hepatectomy (RDRH) is an emerging surgical procedure that a growing number of groups have increasingly reported. This study aims to evaluate extended donor anatomical criteria at each surgical step to enhance safety and improve outcomes.

Methods : From March 2016 to December 2021, 97 RDRH donors were performed, with operative times recorded for each surgical step. After excluding 17 cases conducted before overcoming the learning curve, 80 cases were included in the analysis. Surgical steps, including liver mobilization, hilar dissection, parenchymal transection, and warm ischemic time, were evaluated using multivariate logistic regression to identify risk factors, such as anatomical variations and graft size, contributing to longer operative times.

Results : The presence of multiple right inferior hepatic veins(RIHVs) was identified as a significant risk factor for prolonged mobilization time. Bile duct variations and BMI \ge 23 were determined to be risk factors for prolonged hilar dissection times, while a total liver volume \ge 1200 mL was a significant risk factor for longer parenchymal transection time. Warm ischemic time was significantly prolonged in donors with multiple RIHVs or portal vein(PV) variation. Overall, the presence of PV variations was identified as a key risk factor for longer total operative times until graft retrieval.

Conclusions : In RDRH, each anatomical variation and large graft size increase the complexity of surgical steps. PV variations and multiple RIHVs, which prolong warm ischemic time, require caution to preserve graft quality and careful consideration for extended indications. Beginners should comprehensively assess these risk factors to ensure safe donor selection.

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