

Development And Validation Of A Difficulty Scoring System Of Laparoscopic Liver Resection For Hepatolithiasis

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Background : A difficulty scoring system (DSS) was previously developed to assess the difficulty of laparoscopic liver resection (LLR). In this study, we proposed a modified DSS (mDSS) of LLR for hepatolithiasis and, validated it to predict the postoperative outcomes.

Methods : We reviewed the clinical data of 123 patients who underwent LLR for hepatolithiasis between July 2003 and April 2021 and developed the mDSS. We divided the patients into two groups based on their scores and compared surgical outcomes between the two groups. The indexes for mDSS included resection type, resection side, parenchymal atrophy, intraoperative choledochoscopy, intrahepatic duct (IHD) stricture < 1mm from the bifurcation and previous upper-abdominal surgery history.

Results : The mDSS ranged from 0 to 6 (median: 3). The operation time (median: 260min, $P < 0.001$), blood loss (median: 300ml, $P < 0.001$), RBC transfusion rate ($P = 0.002$), postoperative hospital stay ($P = 0.001$) and severe complication rate (Clavien-Dindo classification \geq IIIa; $P = 0.006$) significantly increased according to the mDSS score. When we divided the patients into two groups based on the mDSS (high: ≥ 3 , low: < 3), the operation time (226.2 vs. 333.9 min; $P < 0.001$), blood loss (338.0 vs. 674.5 ml; $P = 0.001$), RBC transfusion rate (11.5 vs. 33.9%; $P = 0.002$), postoperative hospital stay (8.4 vs. 13.3 days; $P = 0.003$) and severe complication rate (6.6 vs. 24.2%; $P = 0.004$) were greater in high group patients.

Conclusions : The surgical difficulty varies among patients undergoing LLR for hepatolithiasis. The mDSS for hepatolithiasis can effectively predict the surgical outcomes and complications of LLR, and also can help select patient and choose which surgical approach method.

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