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Optimal timing of subsequent laparoscopic cholecystectomy after percutaneous transhepatic gallbladder drainage according to the severity of acute cholecystitis

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Introduction: Optimal timing of percutaneous transhepatic gallbladder drainage (PTGBD) and subsequent laparoscopic cholecystectomy (LC) according to the severity of acute cholecystitis (AC) is not established.

Methods: Total 739 patients with AC without common bile duct stone who underwent PTGBD and subsequent LC from January 2010 to December 2019 were retrospectively reviewed. We defined difficult surgery (DS; open conversion, subtotal cholecystectomy, adjacent organ injury, transfusion, operative time ≥ 90 minutes, or estimated blood loss ≥ 100 milliliters) and poor postoperative outcomes (PPO; postoperative hospital stays ≥ 7 days, or postoperative complication $\geq$ grade II). The receiver operating characteristic analyses were performed for evaluating appropriate duration from onset of symptom to PTGBD (duration A) and from PTGBD to LC (duration B).

Results: Of the 739 patients, 458 were for grade I AC, and 281 were for grade II/III AC. In grade I AC, the cut-off value for the relationship between duration A and PIO was 4.5 days. The cut-off value for the relationship between duration B and PPO was 7.5 days. In multivariate analysis, duration A ≥ 5 days and duration B ≥ 8 days were statistically significant predictors for DS and PPO, respectively. In grade II/III AC, the cut-off value for the relationship between duration A and PPO was 2.5 days. In multivariate analysis, duration A ≤ 2 days was statistically significant predictor for PPO.

Conclusions: Optimal timing of PTGBD and LC is for duration from onset of symptom to PTGBD ≤ 4 days with duration from PTGBD to LC ≤ 7 days in grade I AC, and for duration from onset of symptom to PTGBD > 2 days.

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