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Retrospective non-inferiority study of preoperative bilirubin level on surgical outcomes in hepatectomy with hilar resection

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Introduction: Elevated preoperative bilirubin affects the morbidity and mortality significantly in biliary tract surgery. Routine pre-operative biliary drainage has been suggested and bilirubin level has been kept lower than 3 mg/dL before a major hepatectomy with hilar resection. However, the serum bilirubin may be affected with the undrained liver lobe. The target bilirubin level less than 3 mg/dL probably unnecessary in all patients.

Methods: To study the association of preoperative bilirubin level with post-operative complications and mortality.

Results: There were 51 and 30 patients in group A and B. The operative blood loss was higher in group B but there was no significant difference. The incidence of post hepatectomy liver failure was comparable in group A and B [3.92% vs. 3.33% ($p = 0.898$)]. There was no significant difference of 30-day mortality and 1-year survival between group A and B [3.92% vs. 6.67% ($p = 0.624$) and 76.47 vs. 73.33 ($p = 0.536$)]. Multivariate analysis revealed significant factors that associated with mortality were post hepatectomy liver failure adjusted hazard ratio = 93.70 ($p < 0.001$).

Conclusions: The surgical outcome in patients who have preoperative total bilirubin level between 3 and 10 mg/dL are non-inferior to bilirubin less than 3 mg/dL. Post hepatectomy liver failure is the independent factor that associated with postoperative mortality which relate to other factors such as future remnant liver volume or major complication.

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