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IMPACT OF HIGH PERIOPERATIVE FLUID BALANCE ON POSTOPERATIVE OUTCOMES FOLLOWING PANCREATICODUODENECTOMY, A RETROSPECTIVE COHORT STUDY

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Background : Pancreaticoduodenectomy is a major abdominal surgery with high morbidity. Perioperative fluid management is crucial but the optimal net fluid balance remains inconclusive. This study aims to determine the ideal fluid strategy and evaluate how it impacts severe postoperative complications.

Methods : This retrospective cohort study included 297 patients who underwent pancreaticoduodenectomy from 2005 to 2022. Patients were divided into low, medium, and high net 24-hour cumulative fluid balance tertiles. The primary outcome was severe postoperative complications (comprehensive complication index ≥40). Secondary outcomes included hospital stays, surgical complications, and 30-day mortality. A multivariable logistic regression model, adjusted for potential confounders, was used to examine the relationship between fluid balance and severe postoperative complications.

Results : Patients were divided into low, medium, and high net fluid balance groups. Overall, 14.8% developed severe postoperative complications, with the highest incidence in the high-balance group (28.3% vs. 11.1% vs. 5.1%, p=0.001). High net fluid balance group also had significantly higher respiratory complications, surgical complications included pancreatic fistula, acute kidney injuries, and longer hospital stays. Thirty-day mortality was higher in the high-balance group (8.1% vs. 3.1% vs. 0%, p = 0.010). On multivariable logistic regression, a high 24-hour net fluid balance was independently associated with severe complications, after adjusting for confounder (P=0.001, OR 11.46, 95% CI 3.63-36.14).

Conclusions : In conclusion, a higher 24-hour net fluid balance is independently associated with an increased risk of severe postoperative complications, and higher mortality following pancreaticoduodenectomy. Optimizing perioperative fluid management may improve outcomes in patients undergoing this major procedure.

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