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Early Perioperative Fluid Benchmarking to Predict Pancreaticoduodenectomy (PD) Outcomes

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**Early Perioperative Fluid Benchmarking to Predict
Pancreaticoduodenectomy (PD) Outcomes**

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Title: Early Perioperative Fluid Benchmarking to Predict Pancreaticoduodenectomy (PD) Outcomes

Introduction: PD is a complex operation associated with a marked systemic inflammatory response and significant fluid shifts. Establishing a benchmark for ideal perioperative fluid management is critical to optimising PD patient recovery.

Methods: In this retrospective study, we evaluated perioperative fluid data for patients undergoing PD. We compared an optimal benchmark group who were discharged home by postoperative day five (≤ 5 day) to a group of patients with an in hospital recovery greater than ten days (≥ 10 day).

Results: Seventy-six patients who underwent PD between June 2015 and November 2016 were evaluated. The ≤ 5 day group had a significantly lower intraoperative fluid administration (5.4 vs. 6.6 L, $p = 0.012$), despite similar operative times (447 mins and 476 mins, respectively). POD1 cumulative fluid balance was lower in the ≤ 5 day group compared to the ≥ 10 day group, 7.8L (97 mL/kg) vs. 9.7L (148 mL/kg) ($p = 0.002$), respectively. As expected, the postoperative complication rate was reduced in the ≤ 5 day group (5% vs. 95%). Complications included pancreatic fistula (40%), delayed gastric emptying (53%), and intra-abdominal infection (16%). The median weight change from baseline to POD5 was -0.2 Kg for the ≤ 5 day group compared to $+2.9$ Kg for ≥ 10 day group ($p = 0.000006$).

Conclusions: Patients in the benchmark PD group received less fluid intraoperatively, had a lower cumulative fluid balance by POD1, and were able to return to their preoperative weight by POD5 when compared to ≥ 10 day group. These data offer insights into optimal fluid administration for PD patients.