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## Outcomes after kidney injury in surgery (OAKS): Protocol for a multicentre, observational cohort study of acute kidney injury following major gastrointestinal and liver surgery

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**Introduction:** Acute kidney injury (AKI) is associated with increased morbidity and mortality following cardiac surgery. Data focusing on the patterns of AKI following major gastrointestinal surgery could inform quality improvement projects and clinical trials, but there is a lack of reliable evidence. This multicentre study aims to determine the incidence and impact of AKI following major gastrointestinal and liver surgery.

**Methodology:** Prospective, collaborative, multicentre cohort study will include adults undergoing gastrointestinal resection, liver resection or reversal of ileostomy or colostomy. The primary end point is the incidence of AKI within seven days of surgery; identified using an adaptation of the National Algorithm for detecting AKI based on the Kidney disease improving global outcomes (KDIGO) AKI guidelines. The 30-day adverse event rate was measured using the Clavien-Dindo scale.

**Results:** Almost 20% of patients nationally do not have a pre-operative creatinine test. Post-operative creatinine testing, and thus indication of renal functions demonstrated 98.4% compliance. Nationally, 14 centres have AKI rates above the 95% confidence interval and 2 above the 99.7% confidence interval for AKI rates, and the overall national rate was 13.1%. Using the Clavien-Dindo scoring system, major complication rate was found to be higher in patients who developed AKI, demonstrating it is a significantly associated with morbidity, mortality and cost.

**Discussion & Conclusions:** Pre- and post-operative creatinine measurements can be helpful to stratify risk, direct anaesthetic choices, and guide postoperative management. Patients who have developed an AKI are more likely to go on and develop major complications. It is therefore the hope of the authors that this study will define targets for future quality improvement programmes and clinical trials. Identifying risk factors for AKI will allow stratification of patients to prioritise future interventions aimed at enhancing preoperative optimisation and perioperative monitoring.

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