

Acute Kidney Injury: An Audit of Lower Limb Arthroplasty Patients

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BACKGROUND

Enhanced recovery (ERAS) programmes improve patient safety, reduce length of stay and save money.¹ Many ERAS protocols for lower limb arthroplasty (LLA) include non-steroidal anti-inflammatory drugs (NSAIDs).² Recently, the National Institute for Health and Care Excellence (NICE) highlighted NSAIDs as a risk factor for Acute Kidney Injury (AKI).³ AKI is defined as rise in creatinine of ≥ 26 micromol/L over 48 hours, and is seen in 13-18% of all people admitted to hospital. This audit sought to establish the incidence of AKI in our patients undergoing LLA, all of whom are prescribed Celecoxib as part of our ERAS protocol.

METHODS

We reviewed the pre- and post operative renal function of LLA patients operated on over a one year period, all of whom received Celecoxib post operatively.

RESULTS

- We identified 202 patients over the study period.
- 23 (11%) had a post operative creatinine rise of ≥ 26 micromol/L (Median rise 51, range 26-239).
- This AKI group had a higher pre-operative mean creatinine of 97 micromol/L, vs 85 micromol/L in the non-AKI group ($P=0.004$).
- The AKI group had a lower pre-operative mean GFR of 61 ml/min/1.73m² vs 69 ml/min/1.73m² in the non-AKI group ($P=0.002$).
- 17 of the 23 patients developing AKI had one or more pre-operative risk factors of age ≥ 65 years or GFR < 60 ml/min/1.73m².
- 51 patients had a pre-operative GFR < 60 ml/min/1.73m². 11 (22%) of those developed AKI compared to 12 (8%) of those with a GFR ≥ 60 ml/min/1.73m² ($P<0.01$).
- 113 patients were aged ≥ 65 years. 15 (13%) of those developed AKI compared to 8 (9%) of those < 65 years. This association, however, was not significant ($P>0.20$).

DISCUSSION

The incidence of AKI in elective patients undergoing LLA on the ERAS pathway at our Centre is 11%. A pre-operative GFR of < 60 ml/min/1.73m² was significantly associated with development of AKI. All patients currently receive Celecoxib. It is likely that this may increase the incidence of AKI in this high risk group. We will now modify our ERAS based Celecoxib prescription accordingly and re-audit.

REFERENCES

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2. Bhayani S, Vernon J, Carney A. A National Survey of Enhanced Recovery after Surgery Programmes for Lower Limb Arthroplasty. *Anaesthesia* 2012; 67: 688
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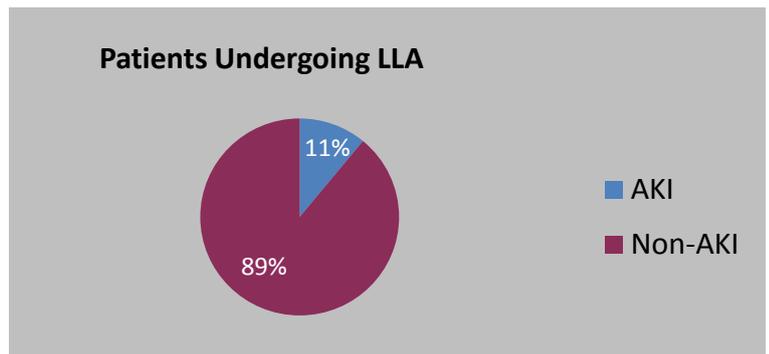


Figure 1. Proportion of patients undergoing LLA who developed AKI

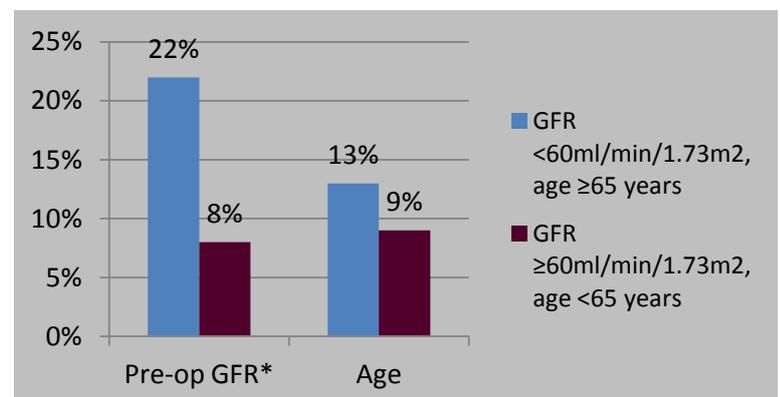


Figure 2. Percentage of patients developing AKI, stratified by pre-operative GFR and age

*Significant association ($P<0.01$)