Reducing the Incidence and Severity of Post-Operative Acute Kidney Injury – A Quality Improvement Initiative at the University of Alberta Hospital

R. Cameron Herman, Pam Mathura, and Neesh Pannu

Background

- Acute kidney injury is a pathologic process characterized by an acute and progressive decrease in the filtration function of the kidney occurring over hours to days.
- This leads to complications from derangements in volume status, acid-base balance, electrolytes, and un-cleared uremic toxins.
- Acute kidney injury is common after surgery (8-33%), and leads to increased risks of heart attack, stroke, and death compared to patients who do not suffer acute kidney injury.
- The care of post-operative patients with acute kidney injury is commonly delivered by non-nephrologists / physicians without extensive training in internal medicine, leading to a "knowledge – practice gap".

Aims

At the University of Alberta Hospital in Edmonton, AB:

1) Determine the incidence and severity of post-operative acute kidney injury on surgical wards.

2) Determine the rate of monitoring of post-operative acute kidney injury on surgical wards.

3) Determine the proportion of patients with post-operative acute kidney injury having a medical consultant involved in their care.

4) Process map the post-operative care pathway.

5) Determine allied health workers perceptions and understanding of post-operative acute kidney injury.

Funding

NP is supported through a Canadian Institutes of Health Research (CIHR) grant.

Methods

- Chart audit was performed by RCH on all patients admitted under general surgery on 2 wards (3E2 & 3E4), from March 8 – 22 / 2017.
- Charts were assessed for the following: age, sex, medical comorbidities, type and nature of surgery performed, post operative monitoring of urine output and serum creatinine, rate and severity of post-operative acute kidney injury, involvement of medical / critical care consultant.
- A 14 question survey was sent to allied health staff of both units regarding knowledge and perceptions of acute kidney injury.
- The post-operative care pathway was mapped by PM and RCH through a front line staff / stakeholders meeting consisting of unit managers, unit clerks, RNs, LPNs, pharmacy, and medical team members.

Results

Table 1: Results of 3E2 and 3E4 Chart Audit

	N = 32
Mean age in years ± standard deviation (SD)	61 ± 18
Female	47%
Number with post-op monitoring of kidney function	31 (97%)
Number with post-op acute kidney injury	2 (6%)
Severity of acute kidney injury (KDIGO)	Stage 1: 2 patients
Acute kidney injury cases with consultant	0

Results

Table 2: Results of 3E2 and 3E4 Allied Health Survey

	N = 25
Number of nurses (RN / LPN)	22 (88%)
% of nurses with experience in ER, ICU, or medicine	36%
% of nurses who monitor urine output	100%
% of nurses who are neutral, agree, or strongly agree that diagnosis of post-operative acute kidney injury is the responsibility of the physician team	91%

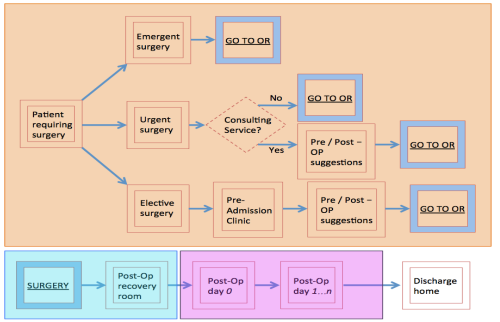

Figure 1: Surgical Care Pathway

Conclusions

- The incidence and severity of post-operative acute kidney injury on two general surgery wards at UAH is low – likely secondary in part to a high rate of renal function monitoring.
- The majority of surgical nurses have minimal experience in medical environments, and perceive the recognition of post-operative acute kidney injury as a physician responsibility.