

Optimizing Detection and Early Management of Acute Kidney Injury Using Trained Caregivers on the Infectious Disease Wards of Kiruddu National Referral Hospital

Mulema E

Makerere College of Health Sciences, Kampala, Uganda. Email: edrinem@gmail.com

Abstract

Background: Acute Kidney Injury (AKI) is a prevalent condition among hospitalized patients and a known cause of morbidity and mortality. AKI can be resolved in up to two-thirds of the patients with proper timely management. Current clinical practice rarely Urine Output (UO) monitoring since it is tedious. Due to limited human resources in Low and Middle-Income Countries (LMICs), informal active involvement of patient caregivers has proved beneficial. In this study, we used a Quality Improvement (QI) approach by training caregivers in UO monitoring to optimize the detection and early management of AKI through a task-shift model.

Methods: A cross-sectional study with a six-month retrospective data review of randomly sampled 121 patient files was done for AKI diagnosis and related outcomes among patients who were admitted on the Infectious Disease (ID) wards of Kiruddu National Referral Hospital (KNRH) to generate pre-intervention data. The same data was prospectively collected in a review of 119 patient files on the same wards for eight weeks during the implementation of the QI interventions. The QI interventions were implemented in two stages: (i) clinical staff education on AKI detection and early management, and (ii) training caregivers on UO monitoring respectively to generate trends in AKI diagnosis. We used Pearson's chi-square test and Fisher's exact test to determine trends in UO monitoring and the prevalence of diagnosed AKI

during the pre-intervention phase and the two stages of QI intervention. Multilevel models using mixed effects logistic regression were used at a 5% significant level to estimate Odds Ratios [ORs] for hypothesized correlates of QI interventions.

Results: In the pre-intervention phase, 72 (60%) were females and their median age was 37 years (IQR; 28-47) while during the QI interventions, only 43 (36%) were females and their median age was 38 years (IQR: 29-48). In the pre-intervention phase, there was no record of UO monitoring and AKI was diagnosed in 12% of the records. In stage one of the QI intervention, UO monitoring increased to 12% and AKI was diagnosed in 25% of patients while in stage two UO monitoring increased to 62% and AKI diagnosed in 31%. Overall during the QI interventions, UO monitoring increased to 40% and AKI was detected in among 29% of the patients while mortality reduced from 40% at baseline to 13% (P value <0.001).

Conclusions: Involving trained patient caregivers in UO monitoring through a multicomponent quality improvement approach optimizes the detection and early management of AKI among patients on the ID wards of KNRH. This study detected a causal impact of the QI interventions on mortality and it is likely that the interventions played a role in the observed decrease in mortality.

Key words: Acute Kidney Injury (AKI), Trained caregivers