IMPACT OF IMPLEMENTATION OF A CARE BUNDLE ON OUTCOMES AFTER ACUTE KIDNEY INJURY

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Introduction and Aims: A recent National Confidential Enquiry in Patient Outcome and Death (NCEPOD) study highlighted poor standards of basic medical care in a significant proportion of hospitalized patients with AKI in England. In patients with AKI, various strategies to decrease mortality have all been proved to be futile and in some cases deleterious. It is extremely important therefore, to focus on improving and standardizing basic care to ensure that all patients receive the best possible management. The objective of this study was to ascertain if improvement in basic standard of care by implementing a care bundle (CB) with interruptive alert improved outcomes in patients with AKI.

Methods: In this single center study, an AKI CB linked to electronic recognition of AKI, coupled with an interruptive alert, was introduced to improve basic care delivered to patients with AKI. Outcomes were compared in patients who had the CB completed within 24 hours (early CB group) versus those who didn’t have the CB completed or had it completed after 24 hours.

Results: In the 11-month period, 2297 patients had 2500 AKI episodes, with 1209 and 1291 episodes occurring before and after implementation of the AKI CB with interruptive alert, respectively. The CB was completed within 24 hours in 306 (12.2%) of AKI episodes. Age, ethnicity and Charlson’s comorbidity score did not differ between the two groups. Patients who had CB completed had higher AKI stage and a higher proportion had emergency admissions. In-hospital case-fatality was significantly lower in the early CB group (18% versus 23.1%, p = 0.046). Progression to higher AKI stages was lower in early CB group (3.9% vs. 8.1%, p = 0.01). In the multivariate analysis, higher Charlson’s comorbidity score, incremental AKI stages, hospital acquired AKI and emergency admission were associated with higher odds of in hospital death. After adjusting for age, gender, type of admission, ethnicity and Charlson’s score, completion of the CB within 24 hours was associated with lower odds of in-hospital case-fatality (OR 0.641; 95% CI 0.46 to 0.891) and 60-day case-fatality (OR 0.641; 95% CI 0.46 to 0.891). In Cox Proportional Hazards analysis, completion of CB within 24 hours of admission was associated with significantly lower hazard ratio of death after a median follow-up of 134 days of 0.771 (95% CI 0.620, 0.958) as compared to patients who did not have CB completed within 24 hours, p = 0.019 (figure 1).

Conclusions: We have observed that the use of an interruptive alert to improve completion of an AKI CB to standardize and improve the initial management of AKI is associated with lower in-hospital, 30-day and 60-day case-fatality which persisted till a median follow up of 134 days. The AKI CB along with the interruptive alert can be implemented in any hospital with electronic results reporting, is simple to use and has the potential to improve patient outcome.