FC048 IS AKI IN COVID-19 PATIENTS ASSOCIATED WITH INCREASED LENGTH OF STAY AND MORTALITY?

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BACKGROUND AND AIMS: Acute kidney injury (AKI) affects 22% of hospitalised patients and is associated with a 21.9% increased risk of mortality in non COVID-19 presentations. Studies of patients hospitalised with COVID-19 have estimated the prevalence of AKI between 5.1-36.6%. The objective of the study was to identify the prevalence of AKI in COVID-19 patients requiring admissions and associated adverse outcomes.

METHOD: We conducted a retrospective observational cohort study of all patients admitted to hospital with a diagnosis of COVID-19 from 10th March to 7th May 2020. COVID-19 status was defined by a positive COVID-19 PCR nasopharyngeal and oropharyngeal swabs. Patients younger than 18 years of age were excluded from final analysis. Demographic data, past medical history and blood results were obtained from electronic health records. AKI was defined according to KDIGO criteria.

RESULTS: 382 patients (219 Male) were included in the final analysis. The median age of patients was 69 years (Range 18-99). AKI occurred in 153 (40%) patients (103 Male), with a median age of 74 years. 111 (72.5%) patients had AKI on admission, 42 (27.5%) developed AKI while hospitalised. Average clinical frailty score (CFS) in the AKI group was 4. Median creatinine kinase in the AKI group was 213 (IQR 149-1260).

The peak stages of AKI were Stage 1 in 100/153 (65.3%), Stage 2 in 29/153 (19%) and Stage 3 in 24/153 (15.7%). Of AKI patients 14/153 (9.2%) required renal replacement therapy. The mean peak serum creatinine was 246umol/L which was on Day 5 of admission and Day 11 of symptoms on average. 90/153 (58.8%) patients had recovery of kidney function which includes 7 patients (50%) patients becoming dialysis independent. 40/76 (53%) patients who required respiratory support with either CPAP or mechanical ventilation had evidence of AKI compared to 113/304 (37%) of non-ventilated patients.

Amongst patients with AKI, 61/153 (40%) died, 64/153 (42%) were discharged, 20/153 (13%) remain in hospital and 8/153 (5%) were transferred to another hospital with 4 of the patients still requiring dialysis. In comparison, in patients with no AKI, 43/228 (19%) died, 174/228 (76%) were discharged, 9/228 (4%) remain in hospital and 2/228 (1%) were transferred to another hospital.

Length of stay (LoS) of patients included in the study ranged from 0 to 102 days. The mean LoS in the AKI group was 18.1 $\pm$ 17.5 days (Range 0-102). The mean LoS in the non-AKI group was 10.5 $\pm$ 13.30 days (Range 0-84). There was a significant difference in the LoS between the 2 groups, $p<0.01$ (95% CI: 4.1, 11.1).

Of all 153 AKI patients 61 (40%) deaths occurred, compared to 43/228 (19%) in the non-AKI group, this difference was significant, $p<0.01$, OR= 2.89 (95% CI: 1.81, 4.58). Suggesting that patients with AKI had a 74% chance of increased death.

Univariate analysis showed that age, males, baseline eGFR, albumin, CFS and Charlson comorbidity index were predictors of AKI. Multivariate analysis showed that independent predictors of AKI included males, black and Asian race, baseline eGFR and albumin. An increase in baseline eGFR by 1ml/min in COVID-19 patients was associated with a 2.4% risk reduction in death, $p<0.01$, OR= 0.976 (95% CI: 1.02, 1.03).

CONCLUSION: AKI is a poor prognosticator in patients with COVID-19 with prolonged hospitalisation and increased mortality.