

MO381 RISK FACTORS FOR AKI DURING COVID-19 AMONG NON-DIALYSIS CKD PATIENTS

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BACKGROUND AND AIMS: AKI is a strong risk factor for adverse outcomes during Coronavirus disease (COVID-19) in the general population. CKD has been correlated with increased risk of AKI both in the outpatient and inpatient settings. We aimed to define potential risk factors for AKI among patients with non-dialysis CKD admitted due to COVID-19.

METHOD: Multicenter, observational cohort study including 136 adult patients with CKD and 136 age- and sex-matched controls who required admission for COVID-19 in three academic hospitals. Viral infection was confirmed by real-time RT-qPCR and/or serologic testing in all cases. Disease severity on admission was classified according to the WHO—China Joint Mission Report on COVID-19; briefly subjects with COVID-19 were divided into mild (laboratory confirmed, without pneumonia), moderate (laboratory confirmed with pneumonia), severe (dyspnea and/or lung infiltrates >50% of the lung field within 24–48 h) and critical (respiratory failure requiring mechanical ventilation, shock, or other organ failure that requires intensive care). AKI was defined using the 2012 KDIGO classification. CKD was defined as sustained eGFR <60 and >15 ml/min/1.73m² within the 6 months prior to COVID-19 hospitalization. Baseline eGFR was calculated using the CKD-EPI equation. Demographic and clinical data were gathered from medical records. Outcomes were recorded during the following 28 days after admission. We applied logistic regression analysis to describe potential predictors for AKI.

RESULTS: Median age was 80 years (IQR: 70–86). 58.8% of patients were males. The most common symptom on admission was fever (68.8%), followed by cough (57.7%). The majority of subjects presented with severe COVID-19 on admission (75.7%). During 28-day follow-up, 87 patients (32%) developed Stage 1 AKI, 17 subjects (6.3%) developed Stage 2 AKI and 12 patients (4.4%) developed Stage 3 AKI. AKI was more frequent (61 vs 24.3%) and more severe (Stage 2 AKI: 10.3 vs 2.2%; Stage 3 AKI: 6.6 vs 2.2%) among CKD patients. In adjusted logistic regression analysis, only disease severity and baseline eGFR were independent predictors for AKI in COVID-19 patients that required hospitalization. **CONCLUSION:** CKD patients suffer AKI more frequently and of higher severity during COVID-19. Baseline eGFR, along with COVID-19 severity, are strong predictor factors of AKI in this setting.

| | Non AKI (n=31) | AKI (n=56) | p1* | Non-severe AKI AKI KDIGO 1,2 (n=39) | Severe AKI AKI KDIGO 3 (n=17) | p2** |
|--|-------------------|-------------------|--------------|---|-------------------------------------|------------------|
| Age (years): median (IQR ₂₅₋₇₅) | 59 (40–81) | 66 (52–80) | 0,270 | 74 (63–82) | 56 (47–53) | 0,026 |
| Male sex: n(%) | 22 (70,97) | 42 (75,00) | 0,683 | 27 (69,23) | 15 (88,24) | 0,131 |
| Active smoking: n(%) | 10 (32,26) | 20 (35,71) | 0,745 | 13 (33,33) | 7 (41,18) | 0,573 |
| Active enol consumption: n(%) | 8 (25,81) | 20 (35,71) | 0,343 | 13 (33,33) | 7 (41,18) | 0,573 |
| Active abuse drugs consumption: n(%) | 6 (19,35) | 13 (23,21) | 0,676 | 8 (20,51) | 5 (29,41) | 0,468 |
| Dependence for basic and instrumental activities of daily life: n(%) | 10 (32,26) | 21 (37,50) | 0,625 | 15 (38,46) | 6 (35,29) | 0,822 |
| Hypertension: n(%) | 13 (41,94) | 36 (64,29) | 0,044 | 28 (71,79) | 8 (47,06) | 0,076 |
| Diabetes mellitus: n(%) | 2 (6,45) | 18 (32,14) | 0,006 | 12 (30,77) | 6 (35,29) | 0,739 |
| - Metformin treatment: n(%) | 0 (0,00) | 11 (19,64) | 0,008 | 9 (23,08) | 2 (11,76) | 0,473 |
| Hypercholesterolemia under treatment with statins: n(%) | 4 (12,90) | 24 (42,86) | 0,004 | 17 (43,59) | 7 (41,18) | 0,867 |
| Prior Ischemic cardiopathy: n(%) | 4 (12,90) | 18 (32,14) | 0,048 | 11 (28,21) | 7 (41,18) | 0,339 |
| Prior stroke: n(%) | 0 (0,00) | 8 (14,29) | 0,027 | 6 (15,38) | 2 (11,76) | 0,722 |
| Prior vasculopathy: n(%) | 2 (6,45) | 11 (19,64) | 0,098 | 7 (17,95) | 4 (23,53) | 0,719 |
| Prior Chronic Kidney Disease: n(%)* | 4 (12,90) | 21 (37,50) | 0,015 | 15 (38,46) | 6 (35,29) | 0,822 |
| Basal serum creatinine (mg/dl): median (IQR ₂₅₋₇₅) | 0,87 (0,71–1,09) | 0,97 (0,77–1,30) | 0,045 | 1,00 (63–82) | 0,97 (0,72–1,15) | 0,539 |
| Creatinin-Kinase peak (UI/L): median (RIQ ₂₅₋₇₅) | 7636 (5277–15131) | 9023 (5806–19611) | 0,113 | 8864 (6063–17707) | 12637 (5206–20034) | 0,103 |
| Hyperkalemia > 5,2 mEq/l on admission: n(%) | 0 (0,00) | 17 (30,36) | 0,001 | 6 (15,38) | 11 (64,71) | <0,001 |
| Hypoalbuminemia < 3,5 g/dl on admission: n(%) | 5 (16,13) | 37 (66,07) | 0,001 | 26 (66,67) | 11 (64,71) | 0,145 |
| Metabolic acidosis with pH < 7,32 on admission: n(%) | 6 (19,35) | 20 (35,71) | 0,182 | 11 (28,21) | 9 (52,94) | 0,076 |
| Prothrombin time < 80% on admission: n(%) | 10 (32,26) | 28 (50,00) | 0,102 | 18 (46,15) | 10 (58,82) | 0,145 |
| Critical care admission: n(%) | 5 (16,13) | 24 (42,86) | 0,011 | 15 (38,46) | 9 (52,94) | 0,314 |
| Inpatient death : n(%) | 0 (0,00) | 7 (12,50) | 0,040 | 4 (10,26) | 3 (17,65) | 0,442 |

* Non AKI vs. AKI

** Non-severe AKI vs. Severe AKI

* eGFR < 60 ml/min-1,73m²