

RISK FACTORS ASSOCIATED WITH ACUTE KIDNEY INJURY IN COVID-19 POSITIVE CHILDREN 1 MONTH TO 18 YEARS OLD ADMITTED IN A TERTIARY HOSPITAL FOR CHILDREN FROM MARCH 2020 TO MARCH 2022

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BACKGROUND AND SIGNIFICANCE

- AKI is a broad clinical syndrome that signifies an abrupt decrease in kidney function, an independent risk factor for increased mortality in critically ill patients
- AKI arising from COVID-19 infection frequently complicates the course of hospitalization, risk factors are yet to be identified in children

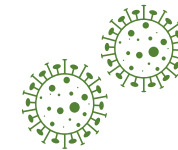
GENERAL OBJECTIVE

- To identify risk factors associated with AKI among COVID-19 positive children

METHODOLOGY

Case-control study
104 COVID-19
RT-PCR-positive patients

26 with AKI
vs 78 without AKI
(based on KDIGO criteria)



RESULTS

The AKI group

- Older, heavier, developed edema, hematuria, proteinuria and hypertension more commonly vs non-AKI group
- Markedly deranged renal function (median serum creatinine 127.5 $\mu\text{mol/L}$ vs 29 $\mu\text{mol/L}$, $p < 0.01$)
- Higher WBC, serum chloride, procalcitonin, and LDH
- Lower lymphocyte count, serum potassium, calcium, D-Dimer
- Higher positive culture yield
- Significant history of shock (57.5% vs 20.5%, $p < 0.001$)
- Increased mortality (34.6% vs 10.3%, $p < 0.01$)

- Fifteen patients (55.6%) had Stage 3 AKI
- Three patients (11.54%) required RRT
- Sixteen patients (61.5%) were discharged, 9 (36%) had residual renal impairment

Association of Clinical Factors Contributing to AKI

| | p value | AOR | 95% CI |
|--------------------------------------|---------|------|--------------|
| BMI | 0.12 | 1.11 | 0.97 - 1.27 |
| Presence of fluid overload | 0.86 | 0.91 | 0.3 - 2.78 |
| WBC count ($\times 10^9/\text{L}$) | 0.21 | 1 | 1 - 1.01 |
| Serum albumin (g/L) | 0.31 | 0.97 | 0.9 - 1.03 |
| Positive NINJA score | 0.3 | 1.92 | 0.56 - 6.56 |
| Presence of comorbidity | 0.98 | 0.98 | 0.27 - 3.61 |
| History of shock | <0.01* | 7.02 | 2.18 - 22.56 |
| Constant | 0.1 | 0.06 | |

*statistically significant; AOR, adjusted odds ratio

RECOMMENDATIONS

- Expand the study period.
- Expand the list of nephrotoxic drugs

CONCLUSION: Patients with history of shock had 7.02 times more chance of developing AKI as compared with other identified risk factors. Sixteen of the 26 AKI patients (61.5%) were discharged. Of the AKI survivors, 9 (36%) had residual renal impairment at discharge.

KEYWORDS

COVID-19, acute kidney injury, children