

Frequency of Acute Kidney Injury in Children Treated with Acyclovir at a Tertiary Care Center

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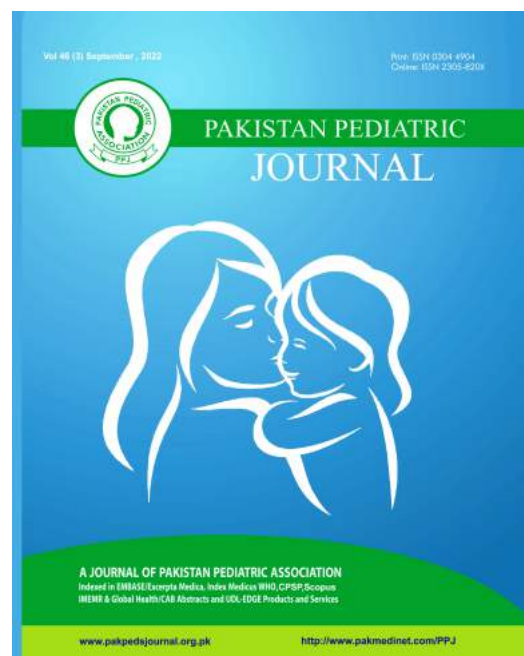
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Abstract

Background: Acute kidney injury(AKI) is common in children. Drug induced nephrotoxicity is one of the common causes among sick admitted children. Acyclovir is used for herpes simplex virus and varicella zoster associated meningoencephalitis. It is a potent nephrotoxic, can induce acute kidney injury (AKI) by crystal nephropathy, acute interstitial nephritis and acute tubular necrosis and may worsen patient's outcome. This study aimed to determine the frequency of AKI in patients receiving acyclovir at tertiary care center.

Methods: A cross-sectional study was conducted in a tertiary care center on children aged one to twelve years receiving intravenous ACV from January to June 2021. Patients with known kidney diseases or with high serum creatinine were excluded. Patients were monitored for



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AKI using pediatric Risk, Injury, Failure, Loss, and End-stage Kidney (pRIFLE) criteria. Demographic and clinical data was collected and analyzed by applying descriptive statistics.

Results: Out of 100 patients, 62 were males. The mean age was 5.75 ± 4.39 years. The primary diagnosis of patients who received acyclovir were presumed viral meningoencephalitis (57%), encephalitis 929%, and meningitis (14%)The AKI was diagnosed in 11% of children on acyclovir. Sixty-four percent of patients with AKI were sick enough to require Pediatric Intensive Care Unit Admission ($p=0.004$) and ventilatory support ($p=0.000$), 73% required inotropes support ($p=0.002$). Patients who developed AKI also had received low maintenance fluid (109.33 ± 34.35 vs. 140.91 ± 30.15 ; $p=0.004$). We found important factors contributed to AKI like PICU admission, ventilator need, inotrope support, concomitant use of nephrotoxic agents, and hydration status in children on acyclovir. Dose and duration of treatment are also other important factors that were not assessed in this study.

Conclusion: AKI was observed in 11%of cases who were on acyclovir treatment for presumed viral infections. PICU admission, inotropic support, mechanical ventilation, concomitant nephrotoxic drugs use and inadequate hydration were important contributing factors for AKI. Maintaining optimal hydration, avoiding concomitant nephrotoxic drugs and daily monitoring of serum creatinine is essential to decrease the risk of AKI and its associated complications in sick children.

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