

Abstract

Background

The kidney is the most damaged organ in asphyxiated full-term infants. The severity of its damage is correlated with the severity of neurological damage. We determined the prevalence of perinatal asphyxia-associated acute kidney injury (AKI).

Methods

We conducted a prospective cohort study including 60 full-term neonates admitted at the Kenyatta National Hospital newborn unit (NBU) in Nairobi with hypoxic ischaemic encephalopathy (HIE) from June 2012 to November 2012. Renal function was assessed by measuring serum creatinine on day 3 of life. AKI was defined by a level of creatinine above 133 $\mu\text{mol/l}$. The degree of neurological impairment was determined daily until patient discharge, death or day 7 of life.

Results

Of the 60 infants 36.6% had HIE I, 51.6% HIE II and 11.8% HIE III. The prevalence of AKI was 11.7%. There was a 15 fold increase risk of developing AKI in HIE III versus HIE I, $p=0.034$. Mortality rate in perinatal asphyxia associated AKI was 71.4% with a 24 fold increase risk of death in neonates with AKI, $p=0.001$.

Conclusions

AKI is common and associated with poorer outcomes in perinatal asphyxia. Larger studies need to be done to correlate maternal factors and perinatal asphyxia-associated AKI.

Keywords: moderate perinatal asphyxia, severe perinatal asphyxia, hypoxic ischaemic encephalopathy, neonatal kidney dysfunction, neonatal neurological dysfunction