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Neonatal acute kidney injury in intensive care unit in Republic of Macedonia

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Objective: Acute kidney injury (AKI) is serious clinical problem in newborns in the neonatal intensive care unit (NICU). Predisposing factors for AKI in neonatal age are: certain clinical conditions (asphyxia, prematurity, sepsis, and meconium plug syndrome), therapeutic interventions and other nephrotoxic drugs. The aim of the study was to present the epidemiological and clinical characteristics of neonatal acute kidney injury in intensive care unit.

Subjects & Methods: The study was designed as a prospective, clinical, epidemiological investigation conducted in the period of 3 years, which included 100 newborns hospitalized in NICU of University Children's Hospital (50 with AKI and 50 without AKI). Medical data records of admitted neonates with AKI were analyzed. The material was statistically processed using methods of descriptive statistics.

Results: The estimated prevalence of AKI in neonates was 6.4%, according to the standard definition, while the prevalence of neonatal AKI according to RIFLE classification was 8.7%. According to pathogenetic mechanisms that lead to kidney injury, prerenal AKI prevailed and it was registered in 78% of male newborns with neoliguric type of AKI. Perinatal asphyxia was a common predisposing factor associated to neonatal kidney injury and it was found in 30% of the examined newborns, being predominant in male infants and born with a low Apgar score in the fifth minute of their life. There was a significant association between the occurrence of AKI and mechanical ventilation and aminoglycoside therapy. The mortality rate was 32% and was significantly higher in the group of newborns with congenital heart diseases.

Conclusion: Acute kidney injury is a life threatening condition. It is an independent contributor to mortality. Early diagnosis and appropriate treatment of acute kidney injury in critically ill newborns, improves the outcome and prognosis.

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