

Pregnancy-Related Acute Kidney Injury in Tunisia

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Objective: The objective of this study was to evaluate the epidemiology, etiologies, clinical data and outcomes for Pregnancy-related acute kidney injury (PRAKI) and to determine the predictive factors of hemodialysis and maternal mortality.

Design: We performed a retrospective, descriptive and analytical study over a 5-year period (January 2016-December 2020) in the anesthesiology service of maternity and neonatology center of Tunis and in the Nephrology, dialysis and renal transplantation department of Rabta hospital.

Method: All patients presenting PRAKI were included. Ninety-six cases of PRAKI were listed.

Results: The rate of AKI during pregnancy-related hospitalizations was 16%. The mean age was 31 ± 5 years. Both median gravidity and parity were 2. The mean-term of pregnancy was 34 ± 4 weeks. Most patients (57%) had insufficient prenatal care. Seventy-eight percent underwent cesarean section delivery. PRAKI occurred in the postpartum in 79% of the cases. Oligo-anuria was the most common clinical feature of PRAKI, noted in 82% of our patients. The median serum creatinine was $121 \mu\text{mol/l}$. According to the RIFLE classification, the study population was divided into 58% "Risk" class, 21% "Injury" class and 4% "Failure" class. The leading etiological causes were preeclampsia-eclampsia (49 %), haemorrhagic shock (38 %), HELLP syndrome (24 %), sepsis (24%) and septic shock (15 %), acute fatty liver of pregnancy (15 %), and thrombotic microangiopathy (1 %). Hemodialysis was necessary in 23% of cases. The median number of hemodialysis sessions was one session with a maximum of 12 sessions. The indications for hemodialysis were dominated by anuria (60%), blood transfusion (45%) and threatening hyperkalaemia (36%). Complete renal function recovery was noted in 75% of patients. Only four patients (4%) developed chronic renal failure. Mortality rate was 13%. Causes of death were dominated by multiple organ failure syndrome and disseminated intravascular coagulation caused by hemorrhagic or septic shock. In the adjusted regression analysis, predictive factors associated with hemodialysis were: insufficient prenatal care ($\text{ORa}=24,113$), HELLP syndrome ($\text{ORa}=35,129$), disseminated intravascular coagulation ($\text{OR}=11,854$), average duration of oliguria ($\text{ORa}=3,025$), «Failure» class of RIFLE criteria while admitted ($\text{ORa}=2,09$) and length of intensive care unit stay ($\text{ORa}=1,118$). Or Multiple organ failure syndrome was an independent factor in maternal mortality ($\text{ORa} = 7.746$).

Conclusions: PRAKI is a dreaded complication of pregnancy with high morbidity and mortality. Prevention of PRAKI requires an improvement of the sanitary infrastructures with the implementation of an obligatory prenatal consultation in order to prompt management of the underlying risk factors.