



PREVALENCE AND RISK FACTORS ASSOCIATED WITH AKI IN A DEVELOPING COUNTRY: A SINGLE CENTER RETROSPECTIVE COHORT

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Background

Epidemiology studies about AKI in developing countries are underreported and an accurate knowledge of the epidemiology of AKI in these regions is needed to define more effective strategies of prevention and treatment. Given that, in developing countries the costs of renal replacement therapies are prohibitively high. Prevention is the best way to reduce costs, mortality and morbidity.

The aim of this study was to evaluate the profile of AKI patients followed in a University hospital setting of a developing country and to correlate outcomes of RRT and renal recovery function according to etiology (glomerulopathy, ischemic and nephrotoxicity) and type of AKI (clinical, surgical, obstetrics and obstructive) searching for risk factors.

Material and Methods

We conducted a retrospective cohort study with patients admitted to a University General Hospital who developed AKI between 2011 and 2013.

Diagnosis of AKI was defined and classified according to the AKIN criteria. Serum creatinine levels were measured consecutively until discharge. Renal recovery function was defined as patients free from RRT and AKIN at discharge of nephrologist setting lower than AKIN of the call. Ischemic etiology was defined by the presence of hypovolemia with or without sepsis.

Results

We evaluated 780 patients of which 407 met the AKI criteria with a mean age 54 ± 19.8 years and 54% female. Approximately 30% of the patients died and among patients that needed RRT (40%) the mortality rate was 52%. Patients were classified as follows: AKIN 1 (23,3%), AKIN 2 (25,7%) and AKIN 3 (43,7%).

Previous diseases most associated to AKI were: hypertension (30,2%), diabetes mellitus (11,3%) and cirrhosis (13,5%). Clinical renal injury was the most prevalent, (75,4%) follows to obstructive (10,3%), surgical (8,8%) and obstetrics (4,6%) causes. Clinical AKI showed a lower frequency of recovery of renal function than the other types of AKI (46,9% vs. 63%; OR: 1,92; CI: 95% = 1,21 - 3,06; p: 0,007) and patients with obstetric AKI needed less frequently hemodialysis than the other types of AKI (15,7% vs. 43,2%; OR: 4,07; CI: 95% = 1,16 - 14,20; p: 0,032). Sepsis occurred in 16,5% of patients and in 37,6% of those that were followed at the ICU. The most prevalent etiology of AKI was ischemic (53,5%) followed by nephrotoxicity (12,7%) and glomerulopathy (11,7%).

Results showed that glomerulopathy AKI patients initiated hemodialysis less than others (20,8% vs. 43,2%; OR: 3,08; CI: 95% = 1,49 - 6,39; p: 0,002). Ischemic lesions had poorer outcomes, needed more RRT (49,5% vs. 33,3%; OR: 1,96; CI: 95% = 1,31 - 2,93; p: 0,001) and recovered renal function less than the other etiologies (45,4% vs. 57,1%; OR: 1,6; CI: 95% = 1,08 - 2,37; p: 0,023).

Graph 1: AKI types

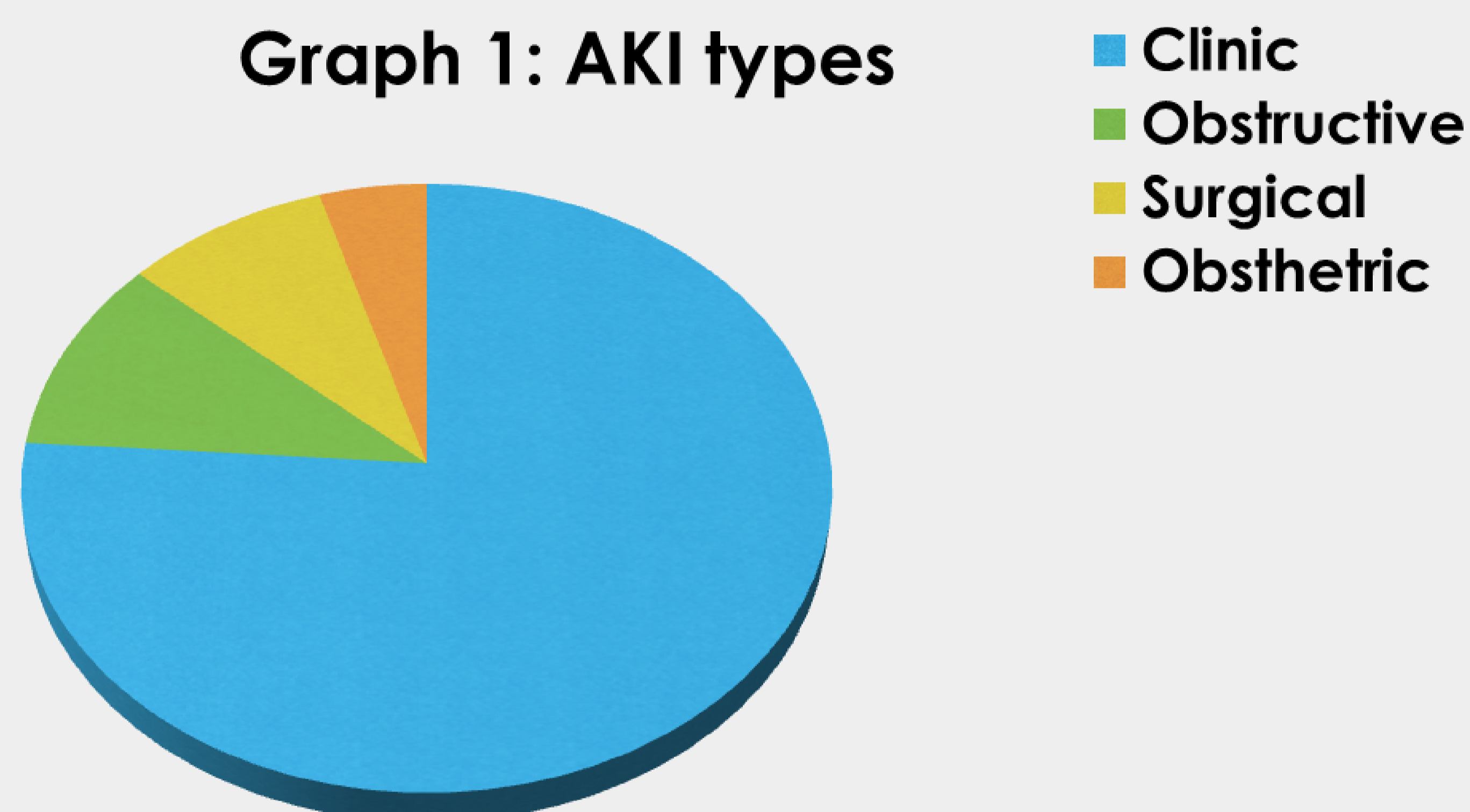


Table 1: Patients' characteristic

Age	54 ± 19.8		
Sex	Male 46%	Female 54%	
AKIN at Nephrology Call	I 23,3%	II 25,7%	III 43,7%
Prior Comorbidities in patients with AKI	Hypertension 30,2%	Diabetes 11,3%	Liver Disease 13,5%
Recovery of Renal Function after AKI	Clinical Causes 46,9%	Other Causes 63%	
Etiology of AKI	Ischemic 53,5%	Nephrotoxicity 12,7%	Glomerular 11,7%

Conclusion

We found higher incidence and worst outcomes for clinical and ischemic AKI compared to the other types and etiologies of AKI.



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