WCN24-AB-781 - COLISTIN-INDUCED ACUTE TUBULAR DYSFUNCTION, ELECTROLYTE IMBALANCES AND ASSOCIATED RENAL OUTCOMES.

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Introduction.

Colistin is relevant in the treatment of infections caused by multidrug-resistant microorganisms; however, it is not exempt from adverse renal events such as acute kidney injury (AKI), acute tubular dysfunction (ATD) and electrolyte imbalances, the latter two being little described in the literature. Therefore, the present study aimed to describe and analyze the electrolyte and urinary excretion disorders associated with the prescription of colistin, as well as the associated renal outcomes.

Methods

Retrospective cohort study. Data were obtained between January 2022 and June 2023. Adult patients who received colistin for at least 48 hours were included. Patients with AKI at baseline, without laboratory studies, on renal replacement therapy or with stage 3-5 chronic kidney disease (CKD) were excluded. The variables were: development of AKI, electrolyte imbalances, urinary excretion of electrolytes and renal function outcome at three months

For the analysis of outcomes, patients were divided into two groups: one with those who developed AKI during treatment and the other with those who did not.

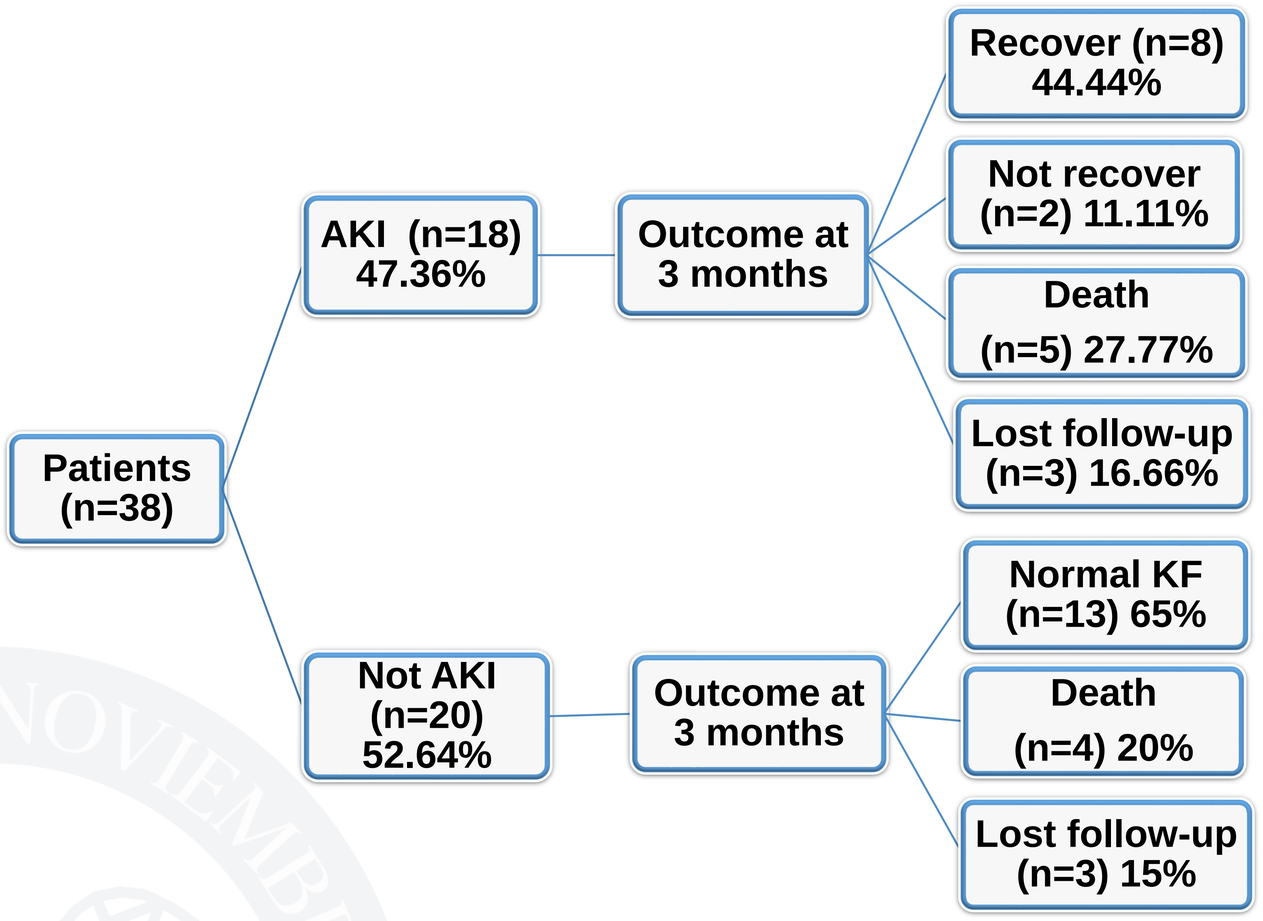

Figure 2. Renal outcomes in patients who were administered colistin, Those who developed AKI had an OR of death of 162 (95% CI, 0.34-7.67)

Results

Of 79 cases of colistin use, 38 were included for study. The mean age was 52.51 years (21.89-88.47), 55.26% of the patients were women and the main microorganism isolated was Pseudomonas aeruginosa (57.89%). The incidence of AKI was 47.36% (n=18). The most frequently encountered electrolyte disorder was hypomagnesemia (the prevalence of the other electrolyte imbalances is shown in Figure 1).

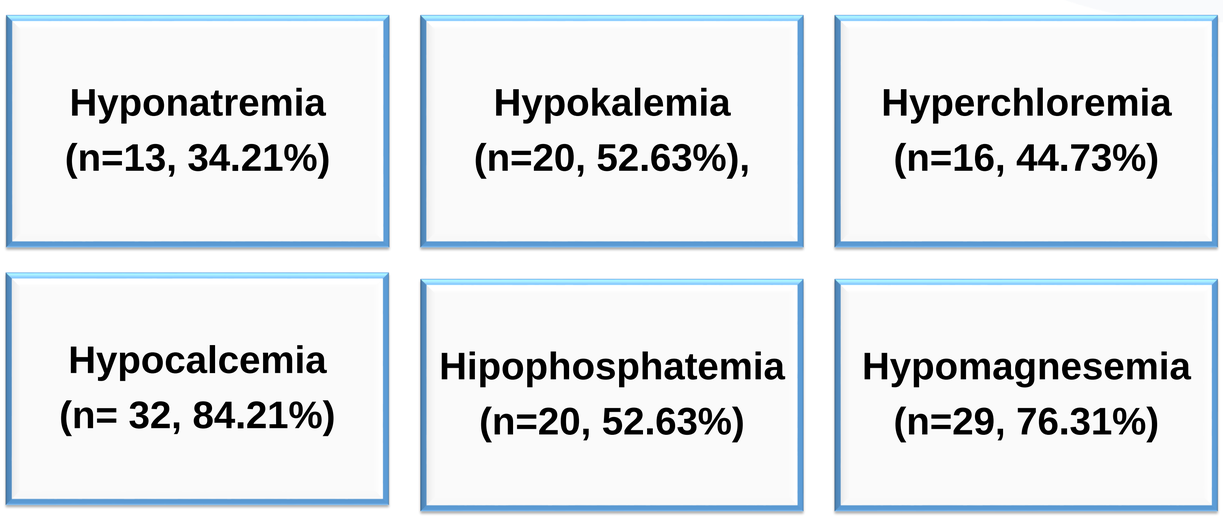

Figure 1. Electrolyte disorders with higher incidence in patients who were administered colistin

Table 1. Renal elimination of potassium, calcium, phosphorus and magnesium in patients treated with colistin.

	Electrolyte imbalance	uK/uCr (meq/g)	uCa/uCr (mg/mg)	EF-P (%)	TRP (%)	EF-Mg2+ (%)
Patient without AKI	↓K+	80.13*				
Patient with AKI #1	↓Ca2+,↓P- y ↓Mg2+	89.98*	0.13	41*	59	8*
Patient with AKI #2	↓K+, ↓Ca2+,↑P- y ↓Mg2+	133.7*	0.3*	8	92	45*
Patient with AKI #3	↓Ca2+	168*	0.39*			
Patient with AKI #4	↓K+	165*				
Patient with AKI #5	↓K+	29.76*				
Patient with AKI #6	↓K+, ↑P- y ↓Mg2+	86.58*	0.15	45	55	21*
Patient with AKI #7	↓K+, ↓Ca2+, ↑P- y ↓Mg2+	139.9*	0.08			9*
Patient with AKI #8	↓K+, ↓Ca2+,↓P- y ↓Mg2+	68.83*	0.05	2.3	97.7	27*

*High elimination for the electrolyte disorder or a normal serum electrolyte. uK/uCr: Urinary potassium/ Urinary creatinine ratio; uCa/uCr: Urinary calcium/urinary creatinine ratio; EF-P- (%): Fractional excretion phosphate; TRP: Tubular reabsortion of phosphate; EF-Mg2+: Fractional excretion of Magnesium.

Conclusions.

In patients who were administered colistin: mortality was higher when they developed AKI during, they presented a high incidence of electrolyte imbalances with hypocalcemia and hypomagnesemia standing out as the most frequent; in addition, the evaluation of urinary excretion of potassium, phosphate and magnesium provides data highly suggestive of acute tubular dysfunction, an event rarely reported in the literature which causes high comorbidity if the imbalance is not treated.