

TITLE: FOSFOMYCIN: IN VITRO EFFICIENCY AGAINST UROPATHOGENS ISOLATED IN UROCULTURES

AUTHORS: CUNHA, A. O.; SANTANA, C. V. S.; SANTOS NETO, A. G.; SANTOS, I. D. D.; PINHEIRO, M. S.

INSTITUTION: UNIVERSIDADE TIRADENTES, ARACAJU, SE (AV. MURILO DANTAS, 300, CEP 49032-490, ARACAJU – SE, BRASIL)

ABSTRACT:

Fosfomicin is a bactericidal drug discovered in 1969 when isolated in cultures of *Streptomyces fradiae* from soil samples. This antimicrobial is mainly administered orally and partially absorbed in the intestine. Fosfomicin acts in the inhibition of cell wall synthesis competing with the enzyme pyruvoyl transferase that acts in the formation of acetylmuramic acid. Through this mechanism, fosfomicin has a broad spectrum of action, being efficient against gram-positive and gram-negative bacteria. Although the efficient mechanism of action, it was observed a mechanism of in vitro resistance that occurs through mutations of specific chromosomes and also frequent with acquired mutations. The present study aims to know and compare the profile of susceptibility to fosfomicin in relation to bacterial species isolated in urine culture and to analyze its efficiency according to the profile of the individuals studied. This is a quantitative, transversal and retrospective study conducted at the Monera Microbiology Laboratory in Aracaju/SE, from the acquisition of data in the period from May 2018 to February 2019, in which the profile of susceptibility of fosfomicin against 1,287 pathogens isolated in urine culture. As for the predominance of uropathogens, *Escherichia coli* prevailed over the others, accounting for 79% of the isolates. Fosfomicin was resistant in 4.8% of the isolated pathogens, demonstrating the lowest resistance rates when compared to the other drugs that compose the medical protocols intended for the treatment of urinary tract infection. The highest resistance indices were presented by Ampicillin (44%), Cephalexin (22.9%) and Sulfamethoxazole/trimethoprim (20.6%). The resistances showed higher values in females, especially those in reproductive phase (48.5%) and elderly (24%). On the other hand, in males, the resistance index prevailed in the elderly (17%). The low resistance indices observed in this study associated with the pharmacological characteristics of fosfomicin, accredited this antimicrobial to the possibility of greater therapeutic success in the treatment of urinary tract infections.

Keywords: Fosfomicin, Drug resistance, Cystitis.