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LETTER

Is fosfomycin as effective as claimed on MDR Gram-negative bacteria causing UTI? [Letter]

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Dear editor

In a recently published paper[1] fosfomycin is claimed to be an effective antibiotic on Gram-negative bacteria (GNBs) causing urinary tract infections (UTIs) in Pondicherry in Southern India. Monotherapy of fosfomycin is not recommended due to chances for development of resistance during therapy is a serious concern[2] therefore the authors suggested using fosfomycin with amoxyclav and nitrofurantoin.[1] Researchers reported fosfomycin as the most effective antibiotic inhibiting 100% *E. coli*, 70% *Klebsiella* sp., and 50% *Pseudomonas* sp. and 40% *Enterobacter* sp. isolates from UTIs. Fosfomycin was also effective against extended-spectrum β-lactamases (ESBL), carbapenemase and AmpC[1] producers. A recent report from Bareilly[3], Northern India indicated *E. coli* as the most common bacteria associated with UTI infections both in humans and animals similar to the report from Pondicherry.[1] However, the report from Northern India reported only that only 12.9% and 33.3% isolates of GNBs associated with UTIs in humans and animals were susceptible to fosfomycin. The study[3] reported that only 8.3% and 25% of *E. coli* isolates from UTI cases were susceptible to fosfomycin. The two studies[1,3] concurred (Table 1) each other concerning the efficacy of meropenem and nitrofurantoin but contradicted each other for the susceptibility of *E. coli* isolates (Table 1) and other GNBs from UTIs to other antibiotics.

Table 1 Susceptibility patterns of *Escherichia coli* associated with urinary tract infections

Antimicrobials tested	Percent sensitive isolates under study in Pondicherry[1]	Percent sensitive isolates under study in Bareilly[3]	
	***E. coli*, human cases (n=217)**	***E. coli*, human cases (n=50)**	***E. coli*, animal cases (n=37)**
Fosfomycin	100	8.3	25.0
Nitrofurantoin	86.6	89.4	78.4
Ciprofloxacin	0.0	14.6	29.7
Gentamicin	4.6	60.0	45.9
Meropenem	84.3	80.6	87.1
Ceftriaxone	0.5	31.7	50.0
Ceftazidime	6.9	40.7	46.7

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Looking at both of the studies,[1,3] we understand a wide variation in susceptibility (Table 1) of the bacteria from different regions and different patients causing similar infections. Thus, a generalization of observation should be avoided for suggesting or using antimicrobial chemotherapy, and more elaborate and continues surveys and monitoring the antimicrobial drug-resistance of important pathogens should be established and regularly published for proper guidance of the clinicians.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Gopichand P, Agarwal G, Natarajan M, et al. In vitro effect of fosfomycin on multi-drug resistant gram-negative bacteria causing urinary tract infections. *Infect Drug Resist*. 2019;12:2005–2013. doi:10.2147/IDR.S207569
2. Hardisson C, Villar CJ, Llaneza J, Mendoza MC. Prevalence and dispersion of plasmids conferring fosfomycin resistance in enterobacteria. *Pathol Biol (Paris)*. 1984;32(7):755–758.
3. Singh BR 2019. Urinary tract infections: the most common causes and effective antimicrobials. Technical Report, UTI-1, Izatnagar: Indian Veterinary Research Institute. Available from: https://www.researchgate.net/publication/334544575_Urinary_tract_infections_The_most_common_causes_and_effective_antimicrobials. doi: 10.13140/RG.2.2.31538.56005/1