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Dear Editor,

Extended spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae organisms are an increasing problem worldwide, but India has one of the highest rates.[1] Carbapenems are the most reliable treatment option for serious infections caused by ESBL-producing organisms[2]; however the need for intravenous administration and high costs make them less suitable for outpatient therapy. In India, an alternative option that is often prescribed by clinicians is faropenem.

Faropenem is an oral antibiotic that belongs to the “penems” class of beta-lactam antibiotics, which are a hybrid of penam (penicillin) and cepham (cephalosporins) nuclei, and are structurally most similar to carbapenems.[3] Faropenem has broad antimicrobial activity: it is active against aerobic Gram-positive, Gram-negative and anaerobic bacteria.[3] In addition, faropenem is resistant to TEM, SHV, and CTX-M type ESBLs.[3] In India, it is approved for treatment of respiratory tract infections, urinary tract infections, skin and soft-tissue infections, and gynecological infections.[4] However, faropenem is often used to treat invasive ESBL-producing Enterobacteriaceae infections even though its efficacy in these cases is unknown.

Based on data from IMS (IMS Health, Danbury, CT, USA) using previously described methodology,[5] we found that the use of faropenem in India has increased significantly since it was approved in 2010 (Figure 1). Though meropenem use has also increased over

the same time-frame, faropenem consumption is greater than all other carbapenems combined.

The dramatic increase in consumption of faropenem poses a major concern because of the potential for cross-resistance to other carbapenems. Recent in vitro studies found that faropenem could be a useful screening indicator of carbapenemase activity in an organism [6]. The fact that 99% of carbapenemase producers tested showed growth up to the edge of a faropenem disk (in contrast to other carbapenems tested that showed inhibition zones) makes it a convenient antibiotic to screen, however might be indicative of a lower activity of faropenem against carbapenemase producers or a higher induction of the carbapenemase.[6] The possibility of inducing carbapenemase production by faropenem is concerning as this could increase the rate at which carbapenemase producers spread through the population. In addition, susceptibility testing against faropenem is not routinely performed in microbiology laboratories in India due to the lack of Clinical Laboratory Standards Institute (CLSI) or European Committee on Antimicrobial Susceptibility Testing (EUCAST) guidelines because the drug has not been approved in the United States or Europe.

The lack of understanding regarding rates of resistance to faropenem and the potential for cross-resistance with other carbapenems is troubling. This is particularly true for India where carbapenem-resistant Enterobacteriaceae are already highly prevalent[1] and the drug is approved for treatment of wide variety of infections for which other antibiotics are available or is used to treat invasive infections caused by ESBL producing organisms for which efficacy data is lacking. It is thus of utmost importance to limit the use of faropenem, and further to investigate the extent of faropenem resistance and the subtle

differences in mechanisms of resistance as well as the rates of cross-resistance with other carbapenems. These investments will, in the long term, contribute to prolonging the activity of one of our last-resort antibiotics.

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