

Third-Generation Cephalosporin-Resistant Enterobacteriaceae in Africa

Dear Editor,

Recent studies by Zhang et al.^[1] and Grundman et al.^[2] added to the evidence regarding the global dissemination of antibiotic resistance among Enterobacteriaceae species in China and Europe, respectively. The African continent is not left out, because it also belongs to the worldwide trend of growing antibiotic resistance among Enterobacteriaceae such as *Escherichia coli* and *Klebsiella* spp., particularly to third-generation cephalosporin (3GC).^[3] 3GC-resistant Enterobacteriaceae are responsible for a range of infections, which include recurrent urinary tract infections, complicated device-associated infections, and fatal bloodstream infections in the hospital and community. These infections, subsequently, lead to prolonged therapy, the consumption of limited healthcare resources, and increased mortality. In recent years, the high levels of 3GC-resistant Enterobacteriaceae have been reported in African countries, which are mediated by the expression of extended-spectrum beta-lactamases ESBL and plasmid AmpC beta-lactamases. About 62.15% of ESBL-producing Enterobacteriaceae isolated from a hospital in Mthatha, South Africa,^[4] exhibited resistance to 3GCs. A similar trend was also reported in Zimbabwe (24.5%),^[5] Algeria (69.85%),^[6] and Togo (95.62%).^[7]

The emergence and spread of 3GC-resistant Enterobacteriaceae in African countries is worrisome because these pathogens often exhibit coresistance to the other classes of antibiotics. This further restricts physicians' treatment options and reduces the effectiveness of 3GCs in the future. Moreover, the next available treatment options, which are the newer antibiotics such as carbapenems, are very costly and not readily available in most countries in Africa. The emergence of resistance to these antibiotics of last resort in certain parts of Africa also worsens the already critical situation. One of the major contributing factors to the rising trend of 3GC-resistant Enterobacteriaceae in African countries is the misuse and overuse of this class of antibiotics for the empirical treatment of bacterial infections and for postsurgical prophylaxis. The misuse is further enhanced by their unregulated sales and widespread consumption without a physician's prescription. Other factors include a lack of antimicrobial surveillance strategies and limited human and healthcare resources.

The World Health Organisation's global priority list of antibiotic-resistant bacteria to guide research, discovery, and the development of new antibiotics published in February 2017 identified a critical need for the development of new antibiotics for Enterobacteriaceae resistant to 3GC.^[3] In addition, drastic intervention and multidisciplinary strategies need to be established in many regions and countries in Africa to prevent and tackle infections caused by antibiotic-resistant pathogens. These include prioritizing infection prevention and control in hospitals, the development and implementation of a strong regulatory policy on antibiotic sales and prescription, and lastly a strengthening of regional and national antimicrobial surveillance.

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Conflicts of interest

There are no conflicts of interest.

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