Commentary: Fluoroquinolone resistance in bacterial isolates from ocular infections: Trend in antibiotic susceptibility patterns between 2005-2020

We read with great interest the manuscript titled "Fluoroquinolone resistance in bacterial isolates from ocular infections: Trend in antibiotic susceptibility patterns between 20052020" by Chatterjee *et al*.[1] The manuscript describes in detail the *in vitro* susceptibility patterns of four major fluoroquinolone antibiotics on bacterial isolates from ocular infections.

Antimicrobial resistance is a major global threat to the human health and economy. It leads to longer hospital stays, higher medical costs, and increased mortality.[2] In adults, the most common cause for corneal blindness is infectious keratitis.[3] Ocular infections are a major cause of visual impairment and blindness. Treating such infections needs data of local susceptibility patterns of recent times. Although the literature of antibiotic susceptibility patterns exists for much of South India and in a few studies in the north, there is no evidence for Central India. Hence, we congratulate the authors for conducting such a long, descriptive, observational study for a period of 16 years from Central India, the first of its kind.

This study included a large cohort of 1007 bacterial samples of ocular infections, which were obtained from the microbiology laboratory records at a Central Indian hospital. It was a wise move of the authors to divide the data into two time periods and compare them, so that trends of resistance could be analyzed. A study from South India concluded that fluoroquinolone resistance was almost stable during 2002–2013, similar to the results of the present study.[4]

As of now, fluroquinolones are the first line of therapy for ocular infections. As a decrease in resistance to fluroquinolones has been observed recently, they can be still considered for potential treatment option. Alternative antibiotics would be very helpful for the management of fluroquinolone-resistant ocular infections. For the gram-positive, fluroquinolone-resistant bacteria, cefuroxime showed the highest sensitivity of nearly 80.6%. For the gram-negative, fluroquinolone-resistant bacteria, colistin (88.8%) and imipenem (73.2%) appeared to be good alternatives. Conversely, a recent study in East India showed 40% of the ocular infections to be colistin resistant. Hence, the results of antibiotic resistance trends should be considered only after understanding the geographic location. In a previous study from South India conducted during 2002–2012, gram-negative bacteria were susceptible to aminoglycosides.[4] The present study revealed an interesting information that aminoglycosides do not help in treating infections of fluroquinolone-resistant isolates in Central India. Larger studies from Central India are required for confirming the results.

To conclude, there has been a declining trend in fluoroquinolone resistance since 2013. Cefuroxime and colistin are identified as new alternative antibiotics to treat fluoroquinolone-resistant ocular infections in Central India.

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