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Resistance Patterns of *Neisseria gonorrhoeae* to Drugs used in National Treatment Regimen- a Five Year Study from National Reference Laboratory in India.

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Background

Gonorrhoea is a sexually transmitted disease of considerable public health importance. Its incidence has grown steadily over the years, with an estimated 82.4 million people newly infected in 2020. There is an alarming increase in resistance to drugs used in the treatment of gonorrhoea. Current treatment regimen for Gonorrhoea in India, as recommended by National AIDS Control Organization, consists of cefixime 400 mg plus azithromycin 1 g orally as a single dose. Resistance of isolates to these crucial drugs needs to be strictly monitored, so that we donot face the prospect of an untreatable gonorrhea in the near future.

Aim/Methods

This study aims to determine the susceptibility patterns of *Neisseria gonorrhoeae* isolates to azithromycin, cefixime and ceftriaxone, over the last five years (2018-2022) at a National Gonococcus Reference Laboratory in India. All clinical samples from males and females attending the STI clinics with genital discharges, were processed for *Neisseria gonorrhoeae* by standard methods. Once confirmed as *Neisseria gonorrhoeae*, the isolates were subjected to antimicrobial susceptibility testing (AST) by MIC strip method to highlight cephalosporin and azithromycin resistance patterns.

Results

A total of 292 isolates of *Neisseria gonorrhoeae* from 2018-2022, showed that 1.71 % were resistant, and 2.05% were less susceptible to cefixime. Also, 1.02 % of these isolates were resistant to ceftriaxone, while 3.76% showed decreased susceptibility. Overall, 2.73% isolates were resistant to third-generation cephalosporins over a period of five years, mostly from North India. Azithromycin susceptibility testing revealed that 8.56% of isolates were resistant, with approximately three fourth of such resistant isolates from North India. The resistance to azithromycin showed a steady increase from 4.71% in 2018 to 18.36% in 2022.

Conclusions

Resistance to third generation cephalosporins is emerging, and posing a grave threat to effective treatment of gonorrhea in the near future. Escalation of azithromycin resistance is found to be 4 times in a span of 5 years, in India , as noted at our Apex Regional STD Centre. Given that ceftriaxone/cefixime with azithromycin is the last resort dual therapy to treat gonorrhea, it is crucial to take stock of the situation and adopt proper measures to control this important STI.

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[Azithromycin resistance pattern for *Neisseria gonorrhoeae*](#)

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