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Editorial

Antimicrobial Resistance in *Neisseria gonorrhoeae* and Limited Treatment Options

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Neisseria gonorrhoeae is an important cause of sexually transmitted infections (STI) worldwide. The global incidence of gonorrhoeae is approximately 62 million cases per year. In developing countries it still remains a major cause of infection. The importance of this disease is not limited to its numerical frequency but also concerns the complications it may cause and its ability to assist the transmission of other STIs including HIV.

By and large, infections in men are detected early enough to prevent serious sequelae. In females, it causes cervicitis, urethritis, pelvic inflammatory disease and infertility and remains an asymptomatic (carrier) infection in early stage.¹ Therefore infection in females facilitates dissemination of the disease in the community. Moreover the frequency of pelvic inflammatory disease and infertility is so common that early and appropriate treatment is mandatory.

The prevalence of gonococcal infections varies widely among communities and patient populations. In Pakistan, incidence or prevalence data are not available to give an accurate picture of the disease distribution. However infection is common and treatment is expensive, for primary as well as complicated cases.²

Given the scale of public health importance of gonorrhoea, selection of appropriate therapy is crucial. Early treatment rapidly reduces infectivity and helps in disease control. Therefore it is important that early, appropriate, and effective therapy is provided to each case. The most useful therapy against gonococcal infections should be a safe, affordable and single dose regimen. Single dose oral therapy is preferred to ensure compliance, and low cost and to reduce risk of infections associated with parenteral therapy.³

Unfortunately *N. gonorrhoeae* is one of the community-acquired bacterial pathogens that are currently causing problem of multidrug-resistance. High rate of antimicrobial resistance against the conventional drugs such as penicillins, tetracyclines and macrolides has limited their use.⁴ Consequently, fluoroquinolones have become the most appropriate and cost effective alternative. Globally treatment of gonorrhoeae with this group of drugs is complicated by exponential rise in antimicrobial resistance. Quinolone resistant *N. gonorrhoeae* (QRNG) continued to spread, in response to which center of diseases control and

prevention (CDC) recommended that quinolones should not be used for the treatment of gonorrhoea in areas with increased prevalence of QRNG (>5%) in 2006.⁵

In Pakistan ciprofloxacin and ofloxacin are the most frequently used antimicrobial agents to treat gonococcal infections. However, previously Jabeen et al have reported a high rate of quinolone resistance in clinical isolates from the years 1992-2002.⁶ The association of in vitro resistance with a high rate of treatment failure was a cause of major concern. In recent years a further rise in resistance (76%, unpublished AKUH laboratory data) excludes their use as empirical agent in the management of gonococcal infections.

Ceftriaxone resistance is not yet detected in local gonococcal isolates and presently it remains the drug of choice, though cost and parenteral mode of administration limits its use. However it is highly desirable that public and private sector laboratories should look for the emergence of resistance against ceftriaxone as strains with reduced susceptibility have been reported in the past.⁷

In search of alternative oral agents, recent studies have evaluated efficacy of azithromycin, cefixime, cefuroxime, cefpodoxime, levofloxacin and gatifloxacin.⁷ To date antimicrobial susceptibility of these drugs has not been evaluated locally. Seeing that previously recommended antibiotics have lost their efficacy, we stress that it is vital to search for a suitable oral agent which can effectively treat gonococcal infections.

Finally, we recommend that to prevent further dissemination of antimicrobial resistance and for an early response, federal health department must take the lead and with the collaboration of NIH, Islamabad and clinical laboratories establish an infrastructure for the national surveillance program to monitor emergence of antimicrobial resistance not only for *N. gonorrhoeae* but also for other bacterial pathogens.

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