Antibiotic Sensitivity Patterns of Neisseria Gonorrhoeae and Prevalence of PPNG amongst Local Clinical Isolates

Madam, Gonorrhoea. which is a curable sexually transmitted disease, has become one of the most common bacterial sexually transmitted infection world wide and especially in the third world countries including Pakistan[1]. Among the factors responsible for this gonorrhoea pandemic are allegd increase in prom iscuity, use of oral and parental contraceptive methods rather than protective (barrier) contraceptive methods, a larger and gradually increasing reservoir of asymptornatic females and males who unknowingly transmit the disease to their sexual partners and decreasing susceptibility of gonococci to commonly used antibiotics[2].

With passage of time, the antibiotic sensitivity pattern of Neisseria gonorrhoeae to various antimicrobial agents keep on changing as new strains resistant to previousIy used drugs develop in various parts of the world to make these drugs virtually ineffective[3]. It is true with penicillin, which used to be the main stay of the treatment especially in the developing countries. In our country the treatment of gonorrhoea is empirical and antibiotics are generally given without properly considering the culture sensitivity report. Probably due to tack of proper laboratory facilities and proper guidelines for treatment of local clinical isolates.

Treatment failures with conventional regimens of penicillin or ampicillin led us to conduct a study to find out the susceptibility patterns of Neisseria gonorrhoeae to various commonly used drugs for treatment of gonorrhoeae in general medical practice. Urethral swabs of 80 male patients attending PNS Shifa Karachi (coming directly or being referred from various armed forces medical establishments and civil sector from Karachi and nearby suburbs) being suspected clinically of acute gonococcal urethritis were investigated by using Nerbe plus swabs. One swab was used for smear formation Gram staining. Seventy five (93.75%) were found positive for gram negative intracellular diplococci on direct microscopy. The other swab was inoculated on chocolate agar medium directly for isolation of N. Gonorrhoeae. Growth of N. Gonorrhoeae was obtained in 46(61.33%) cases. These strains were for susceptibility to various commonly used drugs i.e. penicillin. co-trimoxazole. tetracycline, quinolones. (Norfloxacin, Ciprofloxacin. Ofloxacin) and third generation cephalosporins (Ceftriaxone. Cefixime. Ceftizoxime) by disc diffusion method and for the production of B-Lactamase by rapid penicillinase paper strip test. Penicillin resistance was found in 19 (41.30%) strains of which 6 (13.04%) were B-Lactamase producers (PPNG). the remaining 13 (28.26%) were penicillin resistant B-lactamase negative (Pen RB Neg). All B-Lactamase producers were resistant to co-trimoxazole and tetracycline but 100% were sensitive to quinolones and cephalosporins. One B-Lactamase negative case (7.69%) was also resistant to quinolones but 100% were sensitive to cotrimoxazole. 26(56.52%) resistant to tetracyclines. Only one case (2. 17%) was resistant to quinolones and this strain was also resistant to co-trimoxazole, tetracycline and penicillin but was sensitive to cephalosporins. No resistance to cephalosporins was noted. Multidrug resistance (to 3 drugs) was seen in 18 cases (39.13%) and only one case (2.17%) showed resistance to 4 drugs while 2 drugs resistance was seen in 8 cases (17.39%) and one drug resistance was seen in 17 cases (36.95%).

We conclude that PPNG (B-Lactamase producing) as well as other penicillin resistant strains (Pen RB Neg.) of N. Gonorrhoeae are prevalent in this part of our country and co-trimoxazole and tetracycline resistance is very high among our local isolate and their incidence is on the rise as compared with previously conducted local studies[4,5].

It is suggested that for empirical therapy newer cephalosporins (Ceftriaxone 250mg IM single dose or Cefixime 400 mg single oral dose) and quinolones (Ciprofloxacin 500 mg or Ofloxacin 400 mg single oral dose (because of cost effectiveness and easy administration) must now be considered as first line

drugs for the treatment of gonorrhoeae in Pakistan. Such a policy would be commensurate with recently prepared WHO guidelines[6]. It is further suggested that use of penicillins as an empirical therapy should be strictly discontinued.

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References

1.Schrvver A. Mehens A. Epidemiology of STDs. The Global Picture 1990:68:639-54.
2.Wasserheit JN. Effects of changes in human ecology and behavior on patterns of STDs. Proc. Nail Acad.Sci. USA.. 1994:91:2430-5.
3.Backman M, Jacobson K. Ringertz S. The virgin population ot N Gonorrhoeae in Stockholm has decreased and antimicrobial resistance has increased. Genitourin Med.. 1995:71 234.8.
4.Khannani RPA. Memon AR. Shaikh RB. et al. B-lactamase producing N. Gonorrhoeae strains in Karachi. J. Pak. Med. Assoc., 1994,44:70-1.
5.Qadir SNR. Spectrum of antimicrobial resistant gonococcal urcthritis in males and its correlation with clinical features, Dissertation CPSP., 1991:7:88-91.
6.Krieger JN. New STI)s treatment guidelines. J. Urol., 1995:154.209-13.