

## **Molecular Epidemiology and Antimicrobial Susceptibility of *Neisseria gonorrhoeae* Isolated from Commercial Sex Workers in Dhaka City**

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**Objective:** Analyze epidemiological data on gonococcal infection among the commercial sex workers in Dhaka city, antimicrobial susceptibility testing for *Neisseria gonorrhoeae*, and plasmid profile of isolates.

**Methodology:** Endocervical swab samples from 224 commercial sex workers (CSWs) were cultured for *N. gonorrhoeae*. The isolates were identified by the standard microbiological method and by PCR based on primers which amplify a 390-bp region of the cryptic plasmid of *N. gonorrhoeae*. Susceptibility to and minimum inhibitory concentration of penicillin, tetracycline, ciprofloxacin, cefuroxime, ceftriaxone, and spectinomycin were determined by the agar dilution and disc diffusion method. The total plasmid was extracted from the isolates, and the plasmid profiles were analyzed.

**Results:** *N. gonorrhoeae* was isolated from 94 (41.96%) of the 224 CSWs. Of the isolates, 65.96% were resistant and 34.04% were moderately susceptible to penicillin; 60.64% were resistant and 38.3% were moderately susceptible to tetracycline; 11.75% were resistant and 26.6% had reduced susceptibility to ciprofloxacin; 1.18% were resistant and 11.7% had reduced susceptibility to cefuroxime, and 1% were resistant to ceftriaxone. All isolates were sensitive to spectinomycin. Plasmid profile analysis showed that (32) 34.04% of the strains contained antibiotic-resistant plasmid. All strains contained 2.6 MDa cryptic plasmid. Thirty-eight (40.4%) isolates contained 24.5 MDa conjugative plasmid. Twenty-two isolates were penicillinase-producing *N. gonorrhoeae* (PPNG), and all of them contained 3.2 MDa  $\beta$ -lactamase-producing plasmid of African type. Ten isolates were tetracycline-resistant *N. gonorrhoeae* (TRNG) and contained 25.2 MDa TRNG plasmid.

**Conclusion:** High level of resistance to ciprofloxacin may limit the usefulness of this agent for the primary treatment of gonorrhoea in Bangladesh.

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