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CHANGING OF MOLECULAR CHARACTERIZATION OF GONOCOCCAL ISOLATES IN GUANGDONG, CHINA: IN A BACKGROUND OF A RISING EPIDEMIC

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Background The epidemic of the *N. gonorrhoeae* infection is rapidly increasing since 2015 in China. The aims of this study were to explore the changes of antibiotic susceptibility and molecular characterization of *N. gonorrhoeae* in Guangdong, China, during 2013–2017.

Methods A total of 704 strains were collected consecutively from two cities in Guangdong, China, during 2013–2017. Minimum inhibitory concentrations to 6 antimicrobials were assessed through the agar dilution method. Penicillinase-producing *N. gonorrhoeae* (PPNG) and tetracycline-resistant *N. gonorrhoeae* (TRNG) were characterized for the plasmid type. All isolates collected in 2013, 2014 and 2017 were genotyped by *N. gonorrhoeae* multi-antigen sequence typing (NG-MAST). All statistical analyses were performed using the SPSS 20.0 (IBM) software.

Results Of the 704 consecutive gonococcal isolates, high resistance to penicillin (68.2%), tetracycline (85.7%) and ciprofloxacin (98.2%) were observed during the study period. Spectinomycin, Ceftriaxone and Azithromycin appeared to be effective agents with sensitivity of 100%, 96.4% and 90.7%, respectively. The penicillin- and azithromycin-resistant rates decreased from 78.4% (80/102) to 73.6% (120/163) ($P=0.001$) and 9.8% (10/102) to 3.7% (6/163) ($P=0.004$). The total prevalence of PPNG, TRNG and PPNG/TRNG was 25.4%, 33.1% and 13.4%, respectively, in which the African-type PPNG increased from 6.9% (7/102) to 15.3% (25/163) ($P=0.046$) instead of decreasing Asian-type PPNG from 30.4% (31/102) to 8.0% (13/163) ($P<0.001$), and the American-type TRNG increased from 0% to 4.3% ($p=0.01$) instead of decreasing the Dutch-type TRNG from 50.0% to 27.0% ($p<0.001$). Out of 380 isolates collected in 2013–14 and 2017, 145 (38.1%) novel STs were first genotyped. The most prevalent STs were ST5308 ($n=10$), ST5061 ($n=7$), ST3741 ($n=6$) and all ST4676 strains ($n=4$) decreased susceptibility to ceftriaxone ($MIC\geq 0.125$).

Conclusion The African-type PPNG and the American-type TRNG were increased, and more novel STs strains were emerged in Guangdong. The gonococcal isolates with new genotypes might contribute to the raising epidemic of gonorrhoea in this area.

Disclosure No significant relationships.

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THE IMPACT OF INCLUDING THROAT AND RECTAL SWABS FOR CHLAMYDIA AND GONORRHEA TESTING ONLINE IN BRITISH COLUMBIA, CANADA

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Background GetCheckedOnline (GCO) is a comprehensive, online sexually-transmitted infection (STI) testing service in British Columbia, Canada, which includes urine nucleic acid amplification testing (NAAT) for chlamydia (CT) and gonorrhoea (GC). In 2016, responding to mounting evidence of missed infections with urine-only screening, self-collected throat and rectal swabs were added. We aimed to describe missed infections with urine-only screening.

Methods We retrospectively analyzed all CT/GC-related testing episodes conducted through GCO in 2016–2018. Urine testing is recommended for all GCO clients. Rectal swabs are recommended to clients reporting receptive anal sex in the past 3 months; throat swabs are recommended to men who have sex with men (MSM) who indicate giving oral sex in the past 3 months. We described prevalence by site and quantified the proportion of CT/GC infections missed with urine-only screening.

Results Of 10,724 CT/GC urine test episodes, 2746 (25.6%) and 2288 (21.3%) included throat and rectal swabs, respectively. 95.0% and 86.0% of clients recommended for throat and rectal swab testing submitted samples, respectively. Among women, 3760 CT/GC urine test episodes were conducted, with 560 (14.9%) including rectal swabs. Percent positivity by infection-site was 3.6% CT-urine, 3.0% CT-rectal, 0.1% GC-urine, and 0.2% GC-rectal. Urine testing alone detected 95.3% of CT/GC infections. Among MSM, 3088 CT/GC urine test episodes were conducted, with 2587 (83.8%) including throat swabs and 1635 (52.9%) including rectal swabs. Percent positivity by infection-site was 1.5% CT-urine, 0.7% CT-throat, 5.1% CT-rectal, 0.5% GC-urine, 2.4% GC-throat, and 2.8% GC-rectal. Urine testing alone detected only 25.4% of all CT/GC infections.

Conclusion The majority of GCO clients recommended for self-collected throat and rectal swabs submitted samples. Approximately three-quarters of CT/GC infections among MSM would have been missed if swabs had not been offered. Online STI testing services should provide comprehensive bio-specimen collection when indicated to facilitate CT/GC detection and treatment.

Disclosure No significant relationships.