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, CETRIOXONE 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≥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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