PREVALENCE AND CHARACTERISTICS OF GONOCOCCAL INFECTIONS WITH RESISTANCE TO AZITHROMYCIN IN NEW SOUTH WALES, JANUARY 2018-MARCH 2019

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Background: The prevalence of *Neisseria gonorrhoeae* resistant to azithromycin has increased in Australia and internationally, yet the population affected is not well characterised. One third of Australian gonorrhoea notifications are diagnosed by culture and undergo susceptibility testing.

Methods: This study included all gonococcal isolates from cases notified to NSW Health January 2018-March 2019 and focused on infections with azithromycin susceptibility results categorised as susceptible, low-level resistance (LLR; minimum inhibitory concentration (MIC) ≥1.0-<256 mg/L), or high-level resistance (HLR; MIC ≥256 mg/L). Using Pearson $\chi 2$ tests, we compared the proportional distributions of demographics and clinical characteristics of LLR and susceptible infections.

Results: Susceptibility testing was performed on 32% (n=4,283) of notifications in the study period. Of these, 93% (n=4,002) were susceptible to azithromycin and 7% (n=281) resistant, with 277 LLR and 4 HLR cases. The percentage of LLR notifications was higher in 20-29 year-olds (50% vs. 40%, p-overall=0.002) when compared to susceptible cases, but was similar by gender, Indigenous status, and remoteness area. Although there was no overall significant difference by region (p=0.060), LLR cases were overrepresented in the Hunter New England region and amongst persons with overseas addresses at 11% and 13% prevalence, respectively. LLR infections were less commonly resistant to ciprofloxacin (17% vs. 31%, p<0.001) and penicillin (7% vs. 26%, p<0.001); all were susceptible to ceftriaxone. Pharyngeal sites were more likely to be involved in LLR infections (37% vs. 29%, p=0.002) and urogenital sites less likely (53% vs. 61%, p=0.009).

Conclusion: In NSW, gonococcal infections exhibiting azithromycin LLR occurred more frequently in young people and appeared to cluster geographically, including in temporary residents suggesting some overseas importation. Similar distributions among genders indicate circulation across sexual networks. Ongoing surveillance and enhanced collection of exposure and treatment data are critical to contain transmission and assess the public health significance of azithromycin LLR.

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