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ePoster Viewing

Antimicrobials: resistance surveillance

Multicentre surveillance of prevalence of the 23S rRNA A2058G point mutation and molecular subtypes in *Treponema pallidum* in Taiwan, 2009 to 2014

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Objectives While azithromycin at a single, 2-gram dose has been shown in clinical trials to be bioequivalent to benzathine penicillin in the treatment of early syphilis (primary, secondary, or early latent syphilis), the findings that *Treponema pallidum* exhibiting A2058G or A2059G mutation on 23S ribosomal RNA (rRNA) is increasingly reported worldwide has caused concerns. Treatment failures have been reported in patients receiving azithromycin for syphilis due to macrolide-resistant *T. pallidum*. In this surveillance study, we aimed to assess the trends of macriolide-resistant *T. pallidum* identified from patients with early syphilis in Taiwan.

Methods Between September 2009 and July 2014, a surveillance study for macrolide-resistant *T. pallidum* was conducted at eight designated hospitals for HIV care around Taiwan, in which clinical specimens were prospectively collected from patients who presented with early syphilis. By following the typing system proposed by Marra and colleagues for *T. pallidum* isolates, we examined the number of 60-bp repeats in the acidic repeat protein (*arp*) gene, *T. pallidum* repeat (*tpr*) polymorphism, and *tp0548* gene. Detection of A2058G point mutation of 23S rRNA of *T. pallidum* was performed using restriction fragment length polymorphism (RFLP).

Results During the 5-year study period, we collected 845 clinical specimens from 469 patients with syphilis. *T. pallidum* DNA was identified from 43.7% (n=369) of the clinical specimens that were collected from 255 patients (54.4%). 349 clinical specimens that were tested positive for 23S rRNA and examined for macrolide resistance and 5 isolates (1.4%) had A2058G mutation on 23S rRNA. The prevalence of macrolide-resistant *T. pallidum* increased from 0% in the first 3 years of surveillance to 1.5% (2/136) in 2013 and 3.7% (3/81) in 2014. 125 of the 369 isolates (33.9%) were completely typeable. Type 14f/f (n=68 isolates; 61.2%) was the most common isolates, followed by 14b/c (14; 12.6%), 14a/f (6; 5.4%), 14k/f (5; 4.5%), 10b/a (3; 2.7%), 14b/f (3; 2.7%), and others.

Conclusions Subtype 14f/f is the most common *T. pallidum* strain in this multicenter study on syphilis in Taiwan. While the prevalence of *T. pallidum* that exhibits A2058G mutation on 23S rRNA remains low in Taiwan, the increasing detection of macrolide-resistant *T. pallidum* warrants continued surveillance.