Epidemiology

PO - (8408) - DETECTION OF EXTENSIVELY DRUG RESISTANT TUBERCULOSIS AMONG MULTI-DRUG RESISTANT MYCOBACTERIUM TUBERCULOSIS CLINICAL ISOLATES IN BOTSWANA

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Background: The emergence and transmission of multi-drug resistant (MDR) and extensively drug-resistant (XDR) *Mycobacterium tuberculosis* (*M*. *tuberculosis*) strains is a serious threat to tuberculosis control in Botswana. Early detection of drug-resistant isolates is critical to ensure optimal treatment and thereby improve treatment outcomes. The objective of this study was to determine the extent of second-line drug resistance among drug-resistant *M*. *tuberculosis* isolates from Botswana.

Methods: A total of 60 drug-resistant *M*. *tuberculosis* isolates received at Botswana National Tuberculosis Reference Laboratory between 2012 and 2013 were analyzed. DNA was extracted from BD Mycobacterial Growth Indicator Tubes (MGIT) using GenoLyse DNA isolation kit® (Hain Lifescience). Spoligotyping was done using a commercially available spoligotyping kit (Isogen Bioscience). The spoligotype patterns were compared with existing patterns in the SITVIT2 Web database. GenoType MTBDRsl assay (Hain Lifescience) was used for second-line drug susceptibility testing (DST). Fisher’s exact test was used to test for association between drug resistance patterns and HIV status, lineage and geographical location.

Results: Seventeen distinct spoligotype patterns were detected amongst the 60 drug-resistant isolates. The most predominant lineages were Euro-American (58.3%), East Asian (25%) and Indo-Oceanic (15%). Fifty (83.3%) were MDR, 7 (11.7%) were resistant to fluoroquinolones (Pre-XDR) whereas 3 (5%) were resistant to both fluoroquinolones and second-line injectable drugs (XDR). Drug resistance profiles were significantly associated with *M*. *tuberculosis* lineage (p<0.001). There was no association between drug resistance profile and HIV status (p=0.057) and geographical location (p=0.372).

Conclusions: This study highlights the importance of including second-line drug susceptibility testing in a testing algorithm in Botswana. The detection of XDR isolates among MDR-TB isolates highlights the ongoing evolution of resistance and the need for strengthened treatment regimens to improve treatment outcomes and to prevent the spread of these highly resistant strains. Second-line testing will be essential if the 9-month MDR regimen is used in Botswana.