ABSTRACT

KwaZulu-Natal has been ranked as having the fourth highest incidence of transmitted Multiple Drug Resistant-Tuberculosis (MDR-TB) in sub-Saharan Africa. Substantial literature exists indicating the permanent damage that MDR-TB medication has on hearing abilities. The purpose of this study was to describe the hearing function of adults on long term MDR-TB treatment from Murchison Hospital MDR-TB unit in the Ugu District in rural KwaZulu-Natal. The primary aim of the study was to review the possible changes in hearing function in a group of adults on long-term treatment for MDR-TB. Secondly, the study aimed to estimate the number of adults who may present with changes following MDR-TB treatment and establish if relationships exist between the audiological findings and factors such as age and gender. The design of the study was a retrospective comparative data review of 68 patient records, all of which underwent audiological investigations from the start of MDR-TB treatment over a five-month period. The study made use of descriptive and inferential statistics to analyse the data. Specific inferential statistical analysis included analysis of covariance as well as regression analysis. Results from the study showed changes in hearing function in Distortion Product Otoacoustic Emissions (DPOAEs) and Pure Tone Audiometry (PTA) results at all five audiological sessions and across a range of frequencies. 84% of the total sample presented with overall refer readings for DPOAEs and 98.53% of the group of adults presented with criteria indicative of ototoxic hearing loss, specifically a bilateral mild-profound sloping SNHL on clinical PTA results. In the total sample of patient records reviewed in this study, all 68 records showed a change in hearing function, be that changes in DPOAE function and/or changes in PTA thresholds, following long-term treatment for MDR-TB. Variations in the effects of gender and ear difference were minimal and non-significant in all results. Similar presentation, to ototoxic hearing loss, of other degenerative conditions exists; however these conditions were accounted for as exclusion criteria in this study. Therefore the only remaining cause of possible hearing deficit was that of ototoxicity. The study provided valuable data regarding hearing function in a population of adults on long-term MDR-TB treatment in South Africa. Furthermore, the study has highlighted the need for the establishment of standardised audiological monitoring programmes sensitive to ototoxic hearing loss, within the South African context where the incidence of Tuberculosis (TB) and MDR-TB is reportedly high.

Key Words: Multiple Drug Resistant – Tuberculosis (MDR-TB), ototoxicity, aminoglycosides, Distortion Product Otoacoustic Emissions (DPOAEs), pure tone audiometry (PTA).