

Abstract

Purpose: Otitis media is a global middle ear disease with health and economic burden especially in Africa and other developing nations. Chronic suppurative otitis media is an important cause of preventable hearing loss which warrants attention; particularly in the developing world, as it may have important socio-economic implications over and above patients' quality of life. When presenting with an infected ear due to chronic suppurative otitis media, one may have impaired hearing and a perforated eardrum/s. Thus a type 1 tympanoplasty, i.e. myringoplasty operation is indicated to seal the eardrum. A review of literature demonstrates that extensive evidence exists on the success rate and efficacy of myringoplasty surgery in terms of audiological improvement worldwide; however there is paucity of evidence within the developing world context. Numerous studies published are from developed countries which are vastly different to developing countries. Thus this study aimed to explore audiological function in a group of adults following myringoplasty within a developing country context.

Participants: Participant files from the last six years were obtained from the Ear, Nose and Throat (ENT) and Audiology departments at two academic hospitals in Gauteng, Johannesburg. The total sample comprised of 52 participant files consisting of, 20 males (38%) and 32 females (62%), with ages ranging from 18-63years with a mean age of 39.9 years. All 52 participant files could not be included in all the analysis due to missing biographical and/or audiological information in some of the files.

Design: This study was conducted using a retrospective record review quantitative research design; where specific objectives of the study were explored. These included; a description and comparison of hearing function pre and post myringoplasty and an exploration of the possible influence of factors such as HIV/AIDS and type of surgical technique on hearing outcome post-surgery.

Data analysis: Data was analysed using both descriptive and inferential statistics. Inferential statistics in the form of Kolmogorov-Smirnov two sample test and two-tailed paired (dependent) t-test were used to establish statistical significance levels to determine where statistically significant changes occurred pre and post-operatively and to establish if these changes were dependent on specific variables (HIV status and type of surgical technique).

Results: Clinically overall hearing improved post-operatively in terms of tympanometry, pure tone audiometry (air-conduction and bone-conduction testing) and speech reception threshold testing. The predictors for improved hearing outcome post-operatively were; HIV negative status and butterfly cartilage inlay surgery as a surgical technique adopted. Although clinically hearing outcomes improved post-operatively at all air-conduction frequencies; statistically the changes in air-conduction hearing function were only statistically significant at specific frequencies. HIV/AIDS appeared to have an influence on hearing outcome post surgery when investigating clinically but these changes were only statistically significant mainly in HIV negative patients at three air-conduction frequencies. No statistically significant differences were found in mean change in hearing function in both HIV negative

and positive patients at all bone-conduction thresholds. Although the type of surgical technique (specifically the butterfly cartilage inlay surgery) had an influence on hearing outcome post-surgery; these changes in air-conduction hearing function in patients who underwent this surgical technique were only statistically significant at specific frequencies. For patients who underwent fascia underlay, no statistically significant changes were found postoperatively.

Conclusion: Current findings offer valuable baseline evidence on hearing outcome pre and post myringoplasty within this developing country context. This evidence can serve as a baseline for future research in the South African population. The study yielded relevant information regarding variables affecting the outcome of myringoplasty surgery in a South African context which is essential in the management of patients from an audiological and surgical perspective.

Key words: audiological, developing, hearing, myringoplasty, otitis media, myringoplasty surgery