

Abstract

Otitis media (OM) is one of the most common causes of hearing loss (HL) in neonates and infants. The correct identification of OM is critical in the management thereof. Research has confirmed that high frequency tympanometry (HFT) should be a part of the newborn hearing screening (NHS) as it reliably and accurately identifies OM. Although it is imperative that HFT equipment is available to audiologists working with neonates and infants, there is a dearth of information regarding the use of HFT in South Africa. The purpose of this study was to determine the use of HFT by South African audiologists in clinical practice. In addition, the pass and refer rates between HFT and other screening tests used in the identification of possible middle ear pathology in neonates and infants were determined.

A non-experimental, descriptive, cross-sectional survey design was used to describe the use of HFT in clinical practice. A total of 113 questionnaires, completed by paediatric audiologists, were analysed. Results indicate that only 50% of audiologists had access to and included HFT in their test battery. These participants mainly worked in government hospitals ($n=25$) and private practice ($n=23$). The rest of the participants reported HFT to be unavailable, mainly due to lack of equipment, clinical protocols and training in conducting and interpreting HFT.

A correlation research design was used to determine the pass and refer rates of HFT and other screening tests used in the identification of possible middle ear pathology. Participants were neonates and infants from birth to six months of chronological age ($N_2=303$ ears) (mean gestational age=37 weeks; $SD=4.03$). For the four hearing screening tests the highest pass rates were obtained using low frequency tympanometry (LFT) (right ear = 84%; left ear = 86%). In the three hearing screening tests the highest pass rates were obtained using LFT (right ear = 99%; left ear = 93%). However, the agreement of LFT with other screening tests was poor in both the four and three hearing screening tests. The results confirm that HFT and otoscopy had the best agreement in both the four (0.7237 and 0.7983) and three hearing screening tests (0.5062 and 0.6264) in terms of pass and refer rates bilaterally.

The findings suggest the need for promoting improved training at undergraduate level and clinical practice within the area of paediatric audiology, specifically regarding the use of HFT in the identification of possible middle ear pathology in neonates and infants.

Keywords: high frequency tympanometry, otitis media, clinical practice, pass rate, refer rate