Hearing Screening in Jamaica: Prevalence of Otitis Media With Effusion

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Hearing screening is well established in most developed countries, and the data extensively published. However, little information has been presented by the developing, nonwhite populations. A screening study was carried out on 2202 Jamaican children aged 5 to 7 years. This involved tympanometry and pure-tone audiometry (frequencies of 0.5, 1, and 2 kHz.) Failure was considered to have occurred if a type B or C curve was obtained or if the threshold of hearing was greater than 20 dB. These children were further evaluated by a full ear, nose, and throat examination, inclusive of pneumatic otoscopy, and audiologic testing. The prevalence of hearing impairment was 4.9%. Otitis media with effusion (OME) was present in 1.9%. The prevalence of OME in Jamaica is low when compared with that of the same age-group in the developed countries.


INTRODUCTION

Otitis media with effusion (OME) is defined as the presence of liquid behind an intact tympanic membrane in the absence of signs and symptoms of acute infection. Otitis media with effusion has been acknowledged as the commonest cause of hearing loss among children in developed countries and is associated with speech, educational, and psychosocial retardation.

The prevalence of OME is noted to vary considerably with age, seasons, ethnicity, and geographic location. However, OME is noted to be relatively uncommon in nonwhite populations living in developing countries.

There are limited published data on the epidemiology of otologic diseases in the Caribbean. Therefore the aim of this study was to establish the prevalence of OME in urban Jamaican children between the ages of 5 and 7 years.

MATERIALS AND METHODS

Screening was conducted on 2202 children between the ages of 5 and 7 years. The number of boys screened was 1047, while 1155 girls were assessed (male:female ratio, 1:1.1). The children were from 27 government-owned and five private schools in the Kingston and St. Andrew area. All schoolchildren within the age range were screened.

The mobile unit from the Jamaica Association for the Deaf (JAD) visited the participating schools. An audiologic technician trained at the Long Island Jewish Medical Center (New Hyde Park, NY), along with technicians trained in Jamaica, carried out tympanometry and a pure-tone audiogram screen. A GSI 38 portable tympanometer was used for tympanometry.

At tympanometry, the probe tone was presented at a frequency of 226 Hz and an intensity of 85 dB (sound pressure level [SPL]). The pressure in the external auditory canal was varied from -400 mm H2O to +200 mm H2O. The tympanograms obtained were categorized according to Jerger's classification into types A, B, and C. Types B and C responses were considered as failures.

Pure-tone frequencies of 0.5, 1, and 2 kHz were presented to each ear. A threshold of >20 dB at any frequency was considered to be a failed screen. Audiometry was performed in a mobile, soundproof unit.

The children who failed the screen were then reassessed in a special ear, nose, and throat (ENT) clinic. A full clinical assessment inclusive of pneumatic otoscopy was performed. Treatable conditions such as impacted wax were dealt with, and audiologic retesting performed. Otitis media with effusion that persisted for more than 3 months, despite antibiotic therapy, and was associated with hearing loss was treated with adenoidectomy and grommet insertion.

RESULTS

A total of 2202 children were screened. There were 108 failures, representing a 4.9% failure rate. In the government-owned schools 5.1% of the children failed the screen, while the failure rate in private schools was 4.5%.

Of the boys, 5.7% failed (6% in government-owned schools and 5.2% in private schools). Of the girls, 4.2% failed (4.4% in government-owned schools and 3.8% in private schools). Otitis media with effusion was found in 42 (1.9%) of the 2202 children or 39% of the failures, with no difference between boys and girls. After medical management, only three cases of OME persisted, and these children had adenoidectomy, myringotomy, and grommet insertion under general anesthesis.

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Editor's Note: This Manuscript was accepted for publication May 29, 1997.

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