



Pediatric otitis media in Fiji: Survey findings 2015



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ABSTRACT

Objective: Otitis media (OM), as a common infectious disease, is a major cause of hearing impairment among the general population. OM remains a major public health threat in the Pacific islands, but the risks of OM have not been thoroughly explored in this region. The objective of this study is to investigate the prevalence, clinical features, and quality-of-life impacts of OM in Fiji.

Methods: In the medical service trip entitled “Healing and Hope – Taiwan Cathay Heart and Hearing Medical Mission to Fiji” (TCHHMMF), we conducted a cross-sectional OM survey study in Suva and Sigatoka areas (Korolevu, Cuvu, and Lomawai) in the summer of 2015. The otitis media – 6 (OM-6) was used to survey the OM-related quality of life.

Results: In the 467 pediatric patients (aged 0–18 years old) screened, 13 (2.78%) have acute otitis media (AOM), 37 (7.92%) have otitis media with effusion (OME), and 19 (4.1%) have chronic otitis media (COM). Age (OR 0.53, 95% CI: 0.36–0.77) is a significant predictor of AOM, whereas male gender (OR 2.46, 95% CI: 1.13–5.37), smoke exposure (OR 2.81, 95% CI: 1.01–7.82), and concomitant chronic sinusitis (OR 6.05, 95% CI: 2.31–15.88) are significant predictors of OME. The mean OM-6 item scores are highest in caregiver concerns (3.8), physical suffering (3.7), and hearing loss (3.4) domains.

Conclusion: OM is an important primary care disease in Fiji that remains under-served. It is critical to educate professionals, parents, and patients to detect and to improve care for OM.

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1. Introduction

Otitis media (OM) is a common infectious disease and is a major cause of hearing impairment. It can impact patients' quality of life and incur significant economic burden to the society.

Even though the prevalence of OM has declined over time globally owing to the introduction of new antibiotics and universal vaccination coverage, OM is still a major public health threat in the Asia-Pacific region [1]. The WHO recommends countries with high prevalence of OM (2–4% or even higher), such

as Thailand, Philippines, Malaysia, Vietnam, Solomon Islands, Guam, and Australian Aborigines, to take effective preventive measures for OM [2].

Recent reports confirm significant health burden and economic cost associated with OM in most Asia-Pacific countries [3]. The estimated incidence of acute otitis media (AOM) and chronic suppurative otitis media (CSOM) in the Pacific island nations is estimated 3–4 times greater than that in New Zealand [4]. However, reliable epidemiological and clinical data remain obscure in this region.

Fiji is an island country composed of 332 islands in the South Pacific Ocean, situated about 2000 kilometers northeast of New Zealand's north island. The two major islands are Viti Levu and Vanua Levu. The climate is tropical marine with slight seasonal temperature variation. The population of Fiji is 909,389 and is composed of native Fijians (56.8%), Indian (37.5%), Rotuman (1.2%),

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and others (4.5%). Fiji is a developing country with a majority of the population utilizing a free public healthcare system for acute and long-term care. Most doctors are general practitioners with few otolaryngology specialists [5].

The Cathay General Hospital dispatched a mobile medical team (consists of 2 cardiologists, 2 otolaryngologists, 2 nurses, 1 pharmacist, and 1 coordinator) to provide cardiac and otolaryngology services to Fiji in the summer of 2015. In this study, we describe the observed prevalence, clinical features and risk factors of OM among Fijian children during this medical trip.

2. Materials and methods

In the medical service trip entitled “Healing and Hope – Taiwan Cathay Heart and Hearing Medical Mission to Fiji” (TCHHMMF) (Fig. 1), the team conducted a cross-sectional OM survey in Suva and Sigatoka areas (Korolevu, Cuvu, and Lomawai) in the summer of 2015.

The study variables include demographic data registration (age, gender, body weight, height, education, religion, ethnicity), history taking (family size, number of sibling, history of OM, history of breastfeeding, passive smoking, etc.), general physical examination, and otolaryngology examination. OM was diagnosed and confirmed by 2 senior otologists through otoscope (or ear endoscope) examination and tympanogram (GSI 39 Auto Tymp, Grason-Stadler, Minnesota, MN, USA).

In patients with either acute OM (AOM) or OM with effusion (OME), otologic symptoms such as otorrhea, aural fullness, otalgia, tinnitus, and subjective hearing impairment were documented. AOM was categorized into hyperemic, suppurative, subacute, and perforation stages. OME was categorized into effusion or retraction (atelectasis) groups.

The otitis media – 6 (OM-6) was used to survey the OM-related quality of life [6]. The OM-6 is a subjective outcome survey that evaluates physical suffering, hearing loss, speech impairment, emotional distress, activity limitations, and caregiver concerns of OM children. Each survey item ranks OM-related problems from 1 (none), 2 (hardly), 3 (somewhat), 4 (moderate), 5 (quite a bit), 6 (very much), to 7 (extreme).

The SAS software (SAS Institute Inc., Cary, North Carolina, USA) was used for analysis. The comparative statistics were conducted using χ^2 -test for binary variables. Univariate and multivariate

logistic regression models were used to predict the risks of OM. A p value of <0.05 was set as significance level.

3. Results

3.1. Demographics

A total of 980 patients were screened during the TCHHMMF; 467 (47.6%) were children aged under 18 years old, with mean age of 8.5 ± 3.7 years old (Fig. 2). Among the 467 pediatric patients, 272 (58.2%) were from Suva city (urban) and 195 (41.8%) from Sigatoka (suburban) area. There were 228 (48.8%) male and 239 (51.2%) female; 17 (3.6%) children aged 0–3 years old, 143 (30.6%) children aged 3–6 years old; 231 (49.5%) were from elementary school and 76 (16.3%) were from high school.

The ethnic profile was Fijian (196, 42%), Indian (43, 9.2%), Indo-Fijian (51, 10.9%), Rotuman (17, 3.6%), European (16, 3.4%), Chinese (82, 17.6%), and others (62, 13.3%). The religion distribution was Christian (242, 51.8%), Hindu (67, 14.3%), Muslim (25, 5.4%), and others (133, 28.5%) (Table 1). The family size on average was 5.4 ± 1.9 members that lived together.

3.2. General and otolaryngology conditions

As for general medical diseases, there was 1 (0.2%) child with chronic pulmonary disease in this cohort.

A total of 101 (21.6%) children (103 ears) had ear conditions other than OM, including ear wax impaction (77 ears, 74.8%), otomycosis (6 ears, 5.8%), otitis externa (17 ears, 16.5%), pre-auricular fistula (1 ears, 0.97%), microtia (1 ears, 0.97%), and foreign body (1, 0.97%) (Fig. 2).

There were 44 (9.4%) children with chronic sinusitis, 137 (29.3%) with nasal allergy, 4 (0.86%) nasal polyp, 11 (2.3%) with chronic hypertrophic rhinitis, 5 (1.1%) with nasal septal deviation, and 1 (0.21%) with nasal tumor.

We identified 6 (1.3%) children with cleft palate, 3 (0.6%) with cleft lip, 13 (2.8%) with hypertrophic tonsillitis, 1 (0.21%) with adenoid vegetation, 1 (0.21%) with clinical obstructive sleep apnea, and 2 (0.4%) with oral tumor.

There were 1 (0.21%) child with facial tumor and 1 (0.21%) child with submandibular tumor.

There were some children with special conditions, including mitral valve prolapse (3), autism (2), temporal mastoid joint syndrome (2), seizure (2), brachial cleft cyst (1), canal stenosis (1), ventral septal defect (1), speech delay (1), Down’s syndrome(1), and peri-tonsillar cellulitis (1).

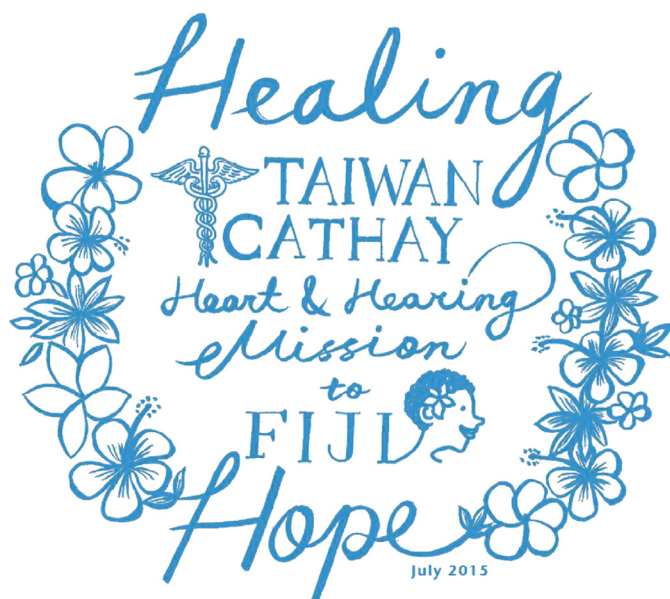


Fig. 1. “Taiwan Cathay Heart and Hearing Medical Mission to Fiji” (TCHHMMF) logo.

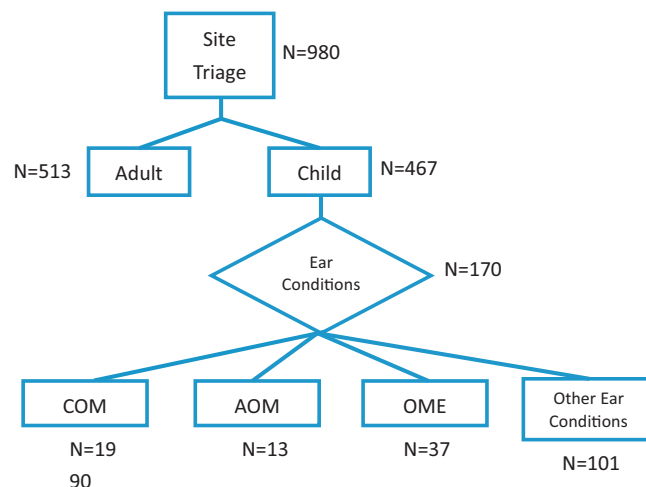


Fig. 2. Pediatric otitis media screen algorithm.

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