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Using of Tympanometry In Secretory Otitis Media

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Abstract

This investigation was done for using of tympanometry in secretory otitis media. This prospective study was conducted at medical clinic in Baghdad city at a period of 2021-2022. The study included 71 Patients who met the inclusion criteria and presented to the OPD were randomly enrolled. Patients with secretory otitis media of any age or gender were considered for inclusion. Thorough history, otoscopic examination, tuning fork tests, and the results of audiological studies such a pure tone audiogram and tympanogram led to the diagnosis of secretory otitis media. There were 32 patients (45.1% of the total) between the ages of 5 and 10, 19 (40.8% of the total) were less than 5 years old, and 9 (12.7%) were older than 15 years old. The male to female ratio was 1.6:1, with 45 men (63.4% of the total) to 26 women (36.6% of the total). Decreased hearing or ear obstruction was the most prevalent presenting symptom at the time of diagnosis, followed by discomfort, otalgia, and delayed speech development. The most frequent observation during otoscopy was an air-fluid level (60.6%), followed by increased vasculature, dullness, and tympanic membrane retraction. It was more typical for both ears to be affected than just one. Tympanograms were performed on all 71 patients. The vast majority (69/97.2%) had a flat type B curve whereas just 2 patients (2.8%) had a type C curve. In conclusion, the secretory Otitis media was occurred in male than female especially at age 5-10 years.

Keywords: Otitis media, Secretory, tympanometry

Introduction

Fluid beneath an unbroken tympanic membrane is called secretory otitis media (1,2). Non suppurative otitis media is also known as glue ear, serous otitis media, or otitis media with effusion. Children's deafness is most often caused by otitis media with effusion (1,3). Secretory otitis media has a mysterious origin. The malfunction of the Eustachian tube, swollen adenoids, allergic rhinitis, maxillary sinusitis, upper respiratory tract infection, etc., may all contribute to this symptom (4).

Careful history taking, an otoscopic examination, and hearing tests (including Tuning fork tests, an audiogram, and a tympanogram) may all help in diagnosing secretary otitis media.

The majority of patients present with hearing loss (5).

In children, secretory otitis media is common, with a 20% prevalence at age 2 and a 15% prevalence at age (6). However, as hearing impairment is not noted in most children, the diagnosis of secretory otitis media in children is often delayed for months or years, leading to poor speech, language, cognition, and behavioural development as well as poor school performance (3, 6).

Constant, vague ear ache or discomfort is another side effect. Therefore, it is crucial to identify and treat secretory otitis media as soon as possible. If left untreated, the infection might become chronic (7).

Antibiotics, antihistamines, mucolytics, and nasal decongestants are initially administered after a diagnosis of secretory otitis media has been established. This phase of therapy often lasts for at least three months (4). Myringotomy and ventilation tube insertion are surgical procedures to explore if the situation does not improve after 3 month (8).

Tympanosclerosis, atelectasis, residual perforations, and cholesteatoma are all possible after-effects of having a breathing tube inserted (7).

Approximately 60% of all surgical operations performed on children under the age of 10 in the British ENT department are for secretory otitis media.Only a select few patients (out of 8) don't need medical attention.

They need nothing more than time and attention to resolve on their own

(8).

This investigation was done for using of tympanometry in secretory otitis media

Materials and Methods:

This prospective study was conducted at medical clinic in Baghdad city at a period of 2021-2022. The study included 71 Patients who met the inclusion criteria and presented to the OPD were randomly enrolled. Patients with secretory otitis media of any age or gender were considered for inclusion.

A thorough history, otoscopic examination, tuning fork tests, and the results of audiological studies such a pure tone audiogram and tympanogram led to the diagnosis of secretory otitis media.

Following diagnosis, all patients had 10 days of oral amoxicillin, xylometazoline nasal decongestant, and acetyl cystine mucolytic, followed by 4 weeks of clemastine antihistamine. Patients were evaluated for improvement in symptoms or otoscopic findings confirmed by tympanogram after 2 weeks of therapy. Patients who were still experiencing any symptoms after 2 weeks were given antihistamines and then reevaluated.

The data was gathered with the use of a special proforma. In every instance, a qualified audiologist performed the otoscopic exams and audiological testing. SPSS version 23 was used to store and analyse the data.

Results:

Age, sex, otoscopic findings, presenting symptoms, related symptoms, audiological testing, as well as treatment outcomes were all compared and analysed.

There were 32 patients (45.1% of the total) between the ages of 5 and 10, 19 (40.8% of the total) were less than 5 years old, and 9 (12.7%) were older than 15 years old. The male to female ratio was 1.6:1, with 45 men (63.4% of the total) to 26 women (36.6% of the total). Decreased hearing or ear obstruction was the most prevalent presenting symptom at the time of diagnosis, followed by discomfort, otalgia, and delayed speech development. The most frequent observation during otoscopy was an airfluid level (60.6%), followed by increased vasculature, dullness, and tympanic membrane retraction. It was more typical for both ears to be affected than just one. Tympanograms were performed on all 71 patients, and as shown in Table 1, the vast majority (69/97.2%) had a flat type B curve whereas just 2 patients (2.8%) had a type C curve.

Table 1: Prevalence of Various Presentation Factors

variable	Number	Percentages
Age		
Less than 5 years	29	40.8
5-10 years	32	45.1
11-15 years	1	1.4
More than 15 years	9	12.7
Ear effects		
Unilateral	64	90.1
Bilateral	7	9.9
Symptoms		
Otalgia	27	38
Ear blockage	53	74.6
Delayed speech	8	11.7
Irritation	37	52.1
Tympanogram		
Type B	69	97.2
Type C	2	2.8

Otoscopic Findings		
Dullness of TM	9	12.7
Increased vascularity	12	16.9
Retracted TM	6	8.5
Air fluid level	43	60.6
No finding	1	1.4

DISCUSSION

Secretory otitis media is referred to by several different names in the medical literature, including middle ear effusion, glue ears, serous otitis media, chronic otitis media with effusion, chronic non suppurative otitis media, as well as otitis media with effusion (1,3,9). There is a high prevalence of both acute and secretory otitis media in children (3,10). Only about a quarter of kids who have secretory otitis media have to have ventilation tubes put through the tympanic membrane for treatment (7,11,12). Children and their parents are both distressed by the surgical process, which calls for general anaesthesia (3,11).

The average age in our sample was 8.4 years old. One study found an annual prevalence of 17% in children aged 5 years old, compared to 6% in children aged 8 years old; another found the opposite, that it is more common in children aged 1 to 4 years old than in those aged 7 years and older (6,13).

The signs and symptoms vary depending on the patient's age. Hearing loss is the most common symptom, and its severity may differ with the seasons and the presence or absence of infection (6,14). Similarly, 74.6 % of patients in our research also reported with deafness or blocked ears. Irritation of the ears was the second most prevalent presenting symptom in our research, occurring in 52.1% of patients, followed by otalgia in 38%. Secondary infection of the fluid in the middle ear cleft causes otalgia in secretory otitis media, and this secondary infection is always caused by pathogenic bacteria in the nasopharynx entering the middle ear via the medial end of the eustachian tube (3,14).

It often occurs at the same time as colds and flu and occasionally follows a sinus infection or an allergy attack. Language and academic difficulties are possible symptoms of secretory otitis media in young children (6,15). Secretory otitis media was detected incidentally in 10% of our patients who arrived with poor or delayed speech development as the primary cause for seeking an opinion. All these individuals had severe secretory otitis media, as shown by elevated fluid levels, the presence of air bubbles on vehicle inspection, and a flat type B tympanogram. The combination of Eustachian tube dysfunction and infection is the primary cause of secretory otitis media (1,6,14).

The clinical diagnosis of secretory otitis media relies heavily on otoscopy. Using a magnified working microscope also aids in making correct diagnoses. Expert doctors report values between 75% and 90%, however the appearance of the tympanic membrane may vary greatly (8, 13, 14). Fluid level or air bubble on otoscope is the most confirming symptom of secretory otitis media, and we discovered this in 60% of our patients.

In order to properly diagnose Secretory otitis media, a tympanogram is essential. When it comes to diagnosing secretory otitis media with a hearing loss of above 25 dB, type B cure is very sensitive but only moderately specific.

Moreover, only 2% of kids with bilateral hearing loss above 25 dB don't have a flat type B tympanogram (7,16) Tympanograms were performed on all 71 participants in our research. Our investigations found a high degree of accuracy for the tympanogram because we only performed them on individuals whose otoscopic and microscopic results were strongly indicative of secretory otitis media.

Conclusion:

The secretory Otitis media was occurred in male than female especially at age 5-10 years.

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