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Effectiveness of homoeopathic medicines in managing otalgia using Wong Baker pain scale among paediatric age groups

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Abstract

Otalgia, or ear pain, is a common condition in paediatric patients that can significantly affect their quality of life. Traditional management often includes analgesics and antibiotics, but homoeopathic treatments are increasingly being explored for their efficacy and safety in paediatric care. This study aims to evaluate the effectiveness of homoeopathic medicines in managing otalgia in children and to identify which specific homoeopathic remedy demonstrates the highest efficacy. A prospective, study was conducted involving paediatric patients diagnosed with otalgia. Participants were treated by homoeopathic medicines based on their individual symptoms. The Wong-Baker FACES Pain Rating Scale, a validated tool for assessing pain in children, was utilized to measure pain levels at baseline, during treatment, and at follow-up visits. Statistical analysis was performed to determine the efficacy of the homoeopathic remedies and to compare their relative effectiveness. Preliminary results indicate a significant reduction in pain scores among children receiving homoeopathic treatment. Variations in efficacy were observed among different remedies, with some medicines showing higher effectiveness in pain relief than others. Specific remedies and their corresponding pain reduction outcomes were detailed. The study provides insights into the effectiveness of homoeopathic treatments for otalgia in paediatric patients. The findings suggest that certain homoeopathic medicines can significantly reduce pain, although effectiveness varies among different remedies.

Keywords: Homoeopathy, otalgia, paediatric pain management, Wong-Baker pain scale, efficacy.

Introduction

Otalgia, or ear pain, is a significant concern in the pediatric population, manifesting with varying etiologies and clinical implications. In children, otalgia can arise from multiple sources, including infections, foreign bodies, and referred pain from other regions such as the throat or jaw. The prevalence of otalgia in children is notably high, with a considerable number experiencing it at some point during early childhood. Both acute and chronic otalgia can affect children, with acute cases often related to acute otitis media, a common infection characterized by inflammation of the middle ear. Chronic cases may stem from persistent infections or structural abnormalities.

The involvement of gender in otalgia is not particularly pronounced, though some studies suggest that males may experience ear infections slightly more frequently than females. Age group involvement is also significant, with young children, especially those under the age of 3, being more susceptible due to their anatomical and immunological development. The Eustachian tube in young children is shorter and more horizontal, making it easier for infections to spread from the nasopharynx to the middle ear.

Assessing pain in pediatric patients, particularly when communication may be limited, is crucial. The Wong-Baker FACES Pain Rating Scale is a valuable tool in this context. This scale uses a series of faces ranging from happy to sad to depict different levels of pain, allowing children to indicate their pain level in a visually understandable manner. It is particularly effective in young children who may struggle with verbal descriptors of pain, thereby providing a more accurate assessment of their discomfort. In the management of otalgia, incorporating this scale can help in tailoring appropriate homeopathic remedies and monitoring the effectiveness of the treatment.

In managing otalgia, a homeopathic approach offers a holistic alternative to conventional treatments. Homeopathy, grounded in the principles of individualized care and natural remedies, can be particularly beneficial in addressing the root causes of otalgia.

Remedies such as *Belladonna* for sudden, intense pain, or *Pulsatilla* for symptoms associated with ear infections and mucus congestion, are frequently utilized. According to Samuel Hahnemann's "Organon of Medicine," treatment should be tailored to the patient's specific symptoms and overall condition, emphasizing the importance of a comprehensive, patient-centered approach.

Samuel Hahnemann's "Organon of Medicine" emphasizes individualized treatment, meaning that homeopathic care is tailored to each child's specific symptoms and overall health.

Aim and objective

1. To assess the effectiveness of homoeopathic medicines in the treatment of otalgia among paediatric age group
2. To analyse which homoeopathic medicine has high effectiveness in treatment of otalgia in paediatric age group
3. To know which medicines has the worked well in managing otalgia in paediatric age group.

Need for the study

The children get at least one episode in first three years, 3 episodes minimum in first and second year, and 2% will develop the sequelae, like acute suppurative otitis media. With the exception of the common cold, otalgia is the most common disorder for which children and their parents seek

Paediatric care. To know the effectiveness of homoeopathy in Paediatric cases.

Review of literature

Definition

Otalgia (ear pain) divides into two broad categories: primary and secondary otalgia. Primary otalgia is ear pain that arises directly from pathology within the inner, middle, or external ear. Secondary or referred otalgia is ear pain that occurs from pathology located outside the ear. A complex neural network innervates the ear as a result of complex embryologic development. The ear shares this neural network with other organs, which leads to numerous potential causes of referred ear pain [1].

Cranial Nerves

- V (trigeminal)
- VII (facial)
- IX (glossopharyngeal)
- X (vagus), and branches from the cervical plexus (C2 and C3) all innervate the ear.
- The auricle is innervated by cranial nerves V, VII, X, C2, and C3.
- The ear canal is innervated by cranial nerves V, VII, and X.
- The tympanic membrane is innervated by cranial nerves VII, IX [1].



Fig 1: Otolgia

- The middle ear is innervated by cranial nerves V, VII, and IX. Cranial nerves V, VII, IX, X, C2, and C3 also innervate organs outside of the ear, leading to numerous potential causes of referred ear pain. Cranial nerve V (trigeminal) is composed of the ophthalmic (V1), maxillary (V2), and mandibular (V3) branches. It provides sensory innervation for the face, uses, palate, and teeth. The auriculo temporal branch of cranial nerve V innervates the temporomandibular joint (TMJ). This branch is most commonly implicated in temporomandibular joint disease. Dental and TMJ pathology are common secondary causes of otalgia. Cranial nerve VII (facial) innervates the anterior two-thirds of the tongue, sublingual submandibular salivary glands. It also innervates the muscles of facial expression.
- Cranial nerve IX (glossopharyngeal) innervates the posterior third of the tongue, carotid body, and oropharynx.
- Cranial nerve X (vagus) innervates the sinuses, thyroid gland, pharynx, and larynx. The superior laryngeal branch of the vagus nerve innervates the vocal cords.
- It also innervates distant organs such as the heart, lung, and parts of the gastrointestinal tract.
- C2 and C3, which are branches of the cervical plexus, innervate the back of the head, sternocleidomastoid, and cervical paraspinal muscles [2].

Epidemiology

In a study of US emergency department (ED) patients with otologic complaints, Kozin *et al* found that the most

commonly diagnosed conditions we reotit is media not otherwise specified (NOS) (60.6%), infected otitis externa NOS (11.8%), and otalgia NOS (6.8%). The data was drawn from a weighted total of 8,611,282 ED visits for otologic problems between 2009-11. In a Korean study of 294 patients with otalgia, the prevalence of primary otalgia was found to be higher in children than in adults and in men than in women, while referred otalgia was more likely to occur in adults in general and in women in particular. The study, by Kim *et al*, also found that neuralgia occurred more frequently in women than in men with referred otalgia.

Causes

Ear pain has a variety of causes, the majority of which are not life-threatening. Ear pain can originate from a part of the ear itself, known as primary ear pain, or from an anatomic structure outside the ear that is perceived as pain within the ear, known as secondary ear pain. Secondary ear pain is a type of referred pain, meaning that the source of the pain differs from the location where the pain is felt. Primary ear pain is more common in children, whereas secondary (referred) pain is more common in adults. Primary ear pain is most commonly caused by infection or injury to one of the parts of the ear [5].

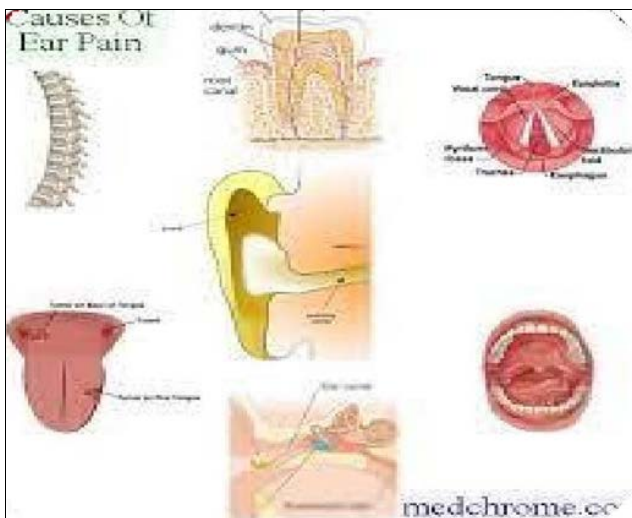


Fig 2: Causes of ear pain

External ear

Many conditions involving the external ear will be visible to the naked eye. Because the external ear is the most exposed portion of the ear, it is vulnerable to trauma or environmental exposures. Blunt trauma, such as a blow to the ear, can result in a hematoma, or collection of blood between the cartilage and perichondrium of the ear. This type of injury is particularly common in contact sports such as wrestling and boxing. Environmental injuries include sunburn, frostbite, or contact dermatitis [5].

Less common causes of external ear pain include

- **Auricular cellulitis:** a superficial infection of the ear that may be precipitated by trauma, an insect bite, or ear

piercing.

- **Perichondritis:** Infection of the perichondrium, or fascia surrounding the ear cartilage, which can develop as a complication of untreated auricular cellulitis. It is important to identify and treat Perichondritis is with antibiotics to avoid permanent ear deformities.
- **Relapsing polychondritis:** A systemic inflammatory condition involving cartilage in many parts of the body, but often including the cartilage of both ears. The severity and prognosis of the disease varies widely

Otitis external

Otitis external, also known as "swimmer's ear", is a cellulitis of the external ear canal. In North America, 98% of cases are caused by bacteria, and the most common causative organisms are *Pseudomonas* and *Staph aureus*. Risk factors include exposure to excessive moisture (e.g. from swimming or a warm climate) and disruption of the protective cerumen barrier, which can result from aggressive ear cleaning or placing objects in the ear. Malignant otitis external is a rare and potentially life-threatening complication of otitis external in which the infection spreads from the ear canal to the surrounding skull base, hence becoming an osteomyelitis it occurs largely in diabetic patients. It is very rare in children, though can be seen in immune compromised children and adults. *Pseudomonas* is the most common causative organism. The pain tends to be more severe than in uncomplicated otitis externa, and laboratory studies often reveal elevated inflammatory markers (ESR and/or CRP).

The infection may extend to cranial nerves, or rarely to the meninges or brain. Examination of the ear canal may reveal granulation tissue in the inferior canal. It is treated with several weeks of IV and oral antibiotics, usually fluoroquinolones [6]. Otitis external, also known as "swimmer's ear", is a cellulitis of the external ear canal. In North America, 98% of cases are caused by bacteria, and the most common causative organisms are *Pseudomonas* and *Staph aureus*. Risk factors include exposure to excessive moisture (e.g. from swimming or a warm climate) and disruption of the protective cerumen barrier, which can result from aggressive ear cleaning or placing objects in the ear. Malignant otitis external is a rare and potentially life-threatening complication of otitis external in which the infection spreads from the ear canal to the surrounding skull base, hence becoming an osteomyelitis it occurs largely in diabetic patients. It is very rare in children, though can be seen in immune compromised children and adults. *Pseudomonas* is the most common causative organism. The pain tends to be more severe than in uncomplicated otitis externa, and laboratory studies often reveal elevated inflammatory markers (ESR and/or CRP). The infection may extend to cranial nerves, or rarely to the meninges or brain. Examination of the ear canal may reveal granulation tissue in the inferior canal. It is treated with several weeks of IV and oral antibiotics, usually fluoroquinolones [6].

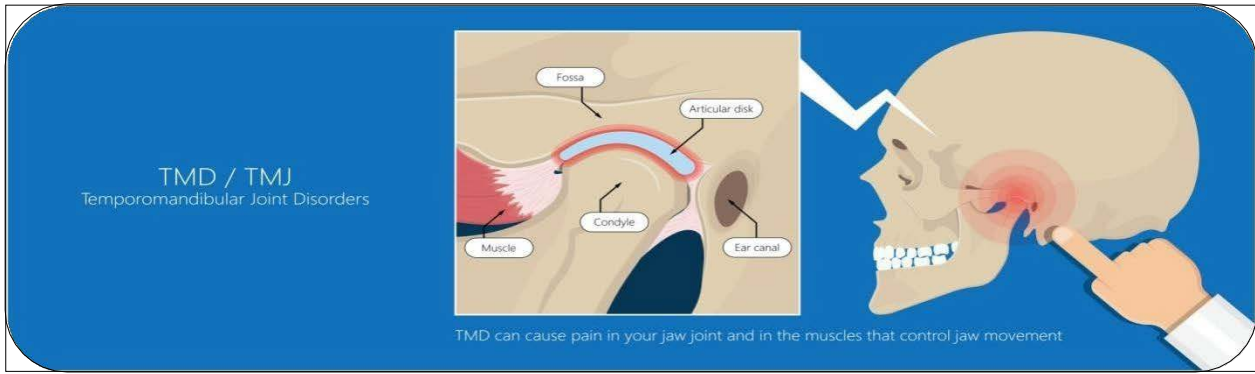


Fig 3: Joint disorder

Mechanical obstruction

- **Earwax impaction:** results in 12 million medical visits annually in the United States. Cerumen impaction may cause ear pain, but it can also prevent thorough examination of the ear and identification.
- **Foreign body:** commonly include insects or small objects like beads

Less common

- **Herpes zoster:** varicella zoster virus can reactivate in an area that includes the ear. Reactivation can produce pain and visible vesicles within the ear canal and, when combined with facial paralysis due to facial nerve involvement, is called Ramsay Hunt syndrome
- **Tumors:** The most common ear canal tumor is squamous cell carcinoma. Symptoms can resemble those of otitis externa, and cancer should be considered if the symptoms are not improving on appropriate treatment [7]

Middle and inner ear

Acute otitis media Otitis media acute otitis media is an infection of the middle ear. More than 80% of children experience at least one episode of it is media by age 3 years

Acute otitis media is also most common in these first 3 years of life, though older children may also experience it. The most common causative bacteria are Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis. Otitis media often occurs with or following cold symptoms. The diagnosis is made by the combination of symptoms and examination of the tympanic membrane deformity, bulging, and/or a middle ear effusion (collection of fluid within the middle ear) Complications of otitis media include hearing loss, facial nerve paralysis, or extension of infection to surrounding anatomic structures, including

- Mastoiditis: infection of the air cells in the mastoid process, the area of the skull located right behind the ear.
- Petrositis infection of the petrous portion of the temporal bone
- Labyrinthitis
- Meningitis
- Subdural abscess
- Brain abscess
- Cerebral venous sinus thrombosis

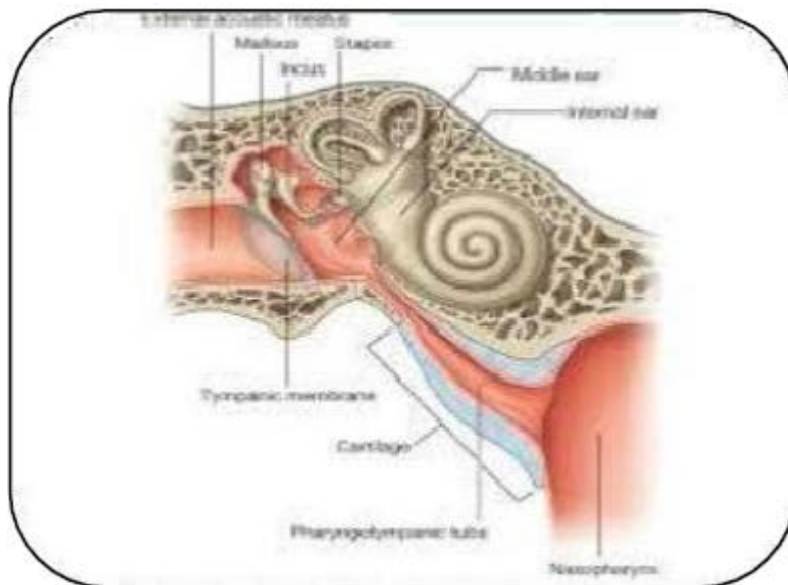


Fig 4: Nerve conduction

Pathophysiology

The sensory innervation of the ear is served by the auriculotemporal branch of the fifth cranial nerve (CNV),

the first and second cervical nerves, the Jacobson branch of the glossopharyngeal nerve, the Arnold branch of the vagus nerve, and the Ramsey Hunt branch of the facial

nerve. Neuro anatomically, the sensation of otalgia is thought to center in the spinal tract nucleus of CN V. Not surprisingly, fibers from CNs V, VII, IX, and X and cervical nerves 1, 2, and 3 have been found to enter this spinal tract nucleus caudally near the medulla. Hence, noxious stimulation of any branch of the above

Physical examination

The physical examination should include an exhaustive otologic, neuro-otologic, head, and neck examination. Careful rhinoscopy, nasopharyngoscopy, and indirect laryngoscopy are mandatory. Despite the low prevalence of malignant upper aerodigestive tract tumors in the authors' study, a well-known strong association (as high as 19% in some studies) between cancer and otalgia exists, and the results of a missed diagnosis can be devastating. Because of its high relative prevalence, actively seek sinus pathology. Palpation of the neck is important to look for thyroid disease, adenopathy, and musculo skeletal disorders [8].

Practice essentials

Otalgia is defined as ear pain. Two separate and distinct types of otalgia exist. Pain that originates within the ear is primary otalgia; pain that originates outside the ear is referred otalgia. Typical sources of primary otalgia are external otitis, otitis media, mastoiditis, and auricular infections. Most physicians are well trained in the diagnosis of these conditions. When an ear is draining and accompanied by tympanic membrane perforation, simply looking in the ear and noting the pathology can make the diagnosis. When the tympanic membrane appears normal, however, the diagnosis becomes more difficult. Referred otalgia is a topic unto itself. Although many entities can cause referred otalgia, the relationship to ear pain must be identified. A categorical discussion of the workup, treatment, prognosis, demographics, and other issues is impossible because the various pathologies responsible for creating referred otalgia are so diverse.

Reports document that not all otalgia originates from the ear. Many remote anatomic sites share dual innervation with the ear, and noxious stimuli to these areas may be perceived as otogenic pain. By definition, referred otalgia is the sensation of ear pain originating from a source outside the ear [9]

The picture below demonstrates the diversity of pathologies that can be the source of referred otalgia

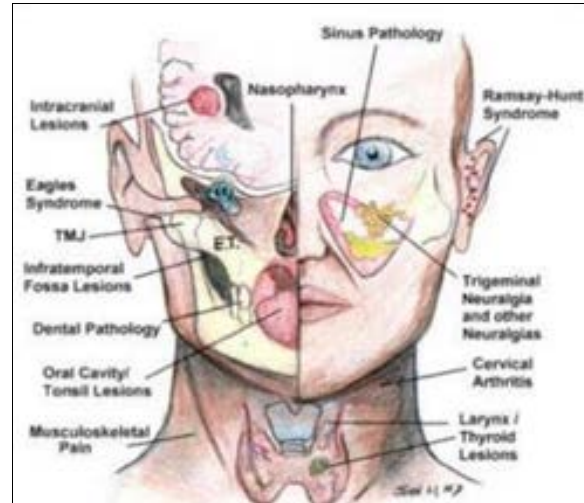


Fig 5: Referred otalgia

Signs and symptoms

Ear pain can present in one or both ears. It may or may not be accompanied by other symptoms such as fever, sensation of the world spinning, ear itchiness, or a sense of fullness in the ear. The pain may or may not worsen with chewing. The pain may also be continuous or intermittent. Ear pain due to an infection is the most common in children and can occur in babies. Adults may need further evaluation if they have hearing loss, dizziness or ringing in the ear. Additional red flags include diabetes, a weakened immune system, swelling seen on the outer ear, or swelling along the jaw [4].



Fig 6: Signs and symptoms

Table below shows the otalgia in children, clinical findings and treatment

Causes	Clinical findings	Treatment
Genic (intrinsic) causes		
External ear		
Otitis externa	Pain on movement of the auricle, foul-smelling aural discharge	Topical antimicrobial agent
Furunculosis	Abscess in the external ear canal	Incision and drainage plus systemic antibiotic
Impacted cerumen	Impacted cerumen	Removal of the cerumen
Foreign body	Foreign body in the external ear canal	Removal of the foreign body
Trauma	Bruising, ecchymoses, abrasions, contusions, abrasions, or hematoma	Conservative treatment
Thermal injuries	Erythematous auricle	Conservative treatment
Perichondritis	Inflamed auricle without involvement of the ear lobe	Systemic antibiotic
Cellulitis	Inflamed auricle, often with involvement of the ear lobe	Systemic antibiotic
Herpes zoster	Vesicles on the auricle and external ear canal	Systemic acyclovir
Myringitis	Inflammation and blebs on the tympanic membrane	Systemic antibiotic
Middle ear		
Otitis media	Inflammation and decreased mobility of the tympanic membrane	Systemic antibiotic
Barotrauma	Tympanic membrane erythematous and retracted, middle ear effusion	Conservative treatment
Traumatic perforation of the tympanic membrane	Perforation of the tympanic membrane	Conservative treatment
Eustachian tube dysfunction	Retraction and decreased mobility of the tympanic membrane	Ear, Nose and Throat consultation
Mastoiditis	Fever, sagging of the ear canal wall skin, tenderness over the mastoid area	Systemic antibiotic, mastoidectomy
Nonotogenic (extrinsic or referred) causes		
Referred pain		
Trigeminal nerve	Lesion in the area supplied by the trigeminal nerve	Treatment of the underlying cause
Facial nerve	Lesion in the area supplied by the facial nerve	Treatment of the underlying cause
Glossopharyngeal nerve	Lesion in the area supplied by the glossopharyngeal nerve	Treatment of the underlying cause
Vagus nerve	Lesion in the area supplied by the vagus nerve	Treatment of the underlying cause
Cervical nerves	Lesion in the area supplied by the cervical nerves	Treatment of the underlying cause
Miscellaneous causes		
Migraine	Photophobia	Analgesic
Aural neuralgia	No abnormal finding	Conservative treatment
Idiopathic	Undue anxiety	Psychotherapy

Fig 7: Clinical findings and treatment

Investigations

Few investigations are required on first review of the patient with otalgia, as history and examination are usually sufficient to commence appropriate first-line management for common conditions. However, in primary otalgia that is not straightforward, or in the case of secondary otalgia, investigations should be considered. Ear swabs should be done only for recurrent or chronic otitis external [10].

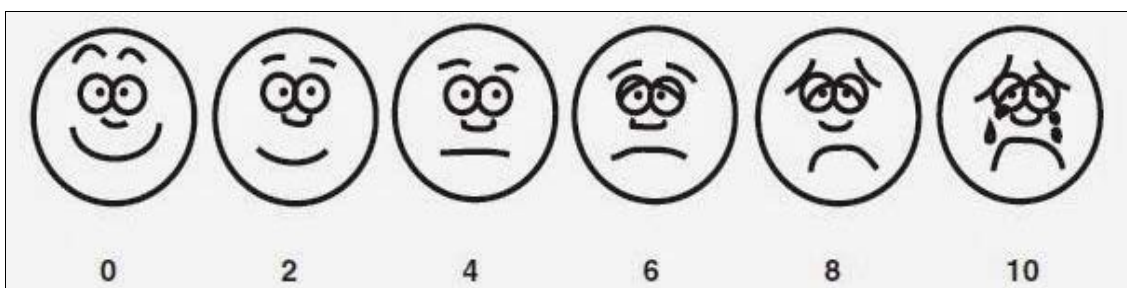
Wong Baker pain scale

The Wong-Baker Faces Pain Rating Scale is a pain scale the scale shows a series of faces ranging from a happy face at 0, or no hurt to a crying face at 10, which represents hurts like the worst pain imaginable Based on the faces and written descriptions, the patient chooses the face that best describes

their level of pain.

There are 6 faces in the Wong-Baker Pain Scale.

1. The first face represents a pain score of 0, and indicates no hurt
2. The second face represents a pain score of 2, and indicates hurts a little bit
3. The third face represents a pain score of 4, and indicates hurts a little more
4. The fourth face represents a pain score of 6, and indicates hurts even more
5. The fifth face represents a pain score of 8, and indicates hurts a whole lot the sixth face represents a pain score of 10, and indicates hurts worst



This pain scale was originally developed for children. However, it can be used with all patients age 3 and above. It is useful for children because they may not understand rating their pain on a scale of 0-10, but are able to understand the cartoon faces and the emotions they represent and point to the one that best matches their level of pain.

General management

Acute otitis media

- **Antibiotics:** If a bacterial infection is suspected or confirmed. Common choices include amoxicillin or amoxicillin-clavulanate.
- **Analgesics:** Use over-the-counter pain relievers like acetaminophen or ibuprofen to manage pain and fever.

- **Warm compresses:** Applying a warm, moist cloth to the affected ear can provide relief.

Otitis externa

- **Topical antibiotics or antifungals:** Use ear drops containing antibiotics (e.g., ciprofloxacin) or antifungals if a fungal infection is suspected.
- **Ear cleaning:** clean the ear canal to remove debris or discharge.
- **Pain relief:** analgesics for pain management.
- **Preventive advice:** Instruct the patient to keep the ear dry and avoid inserting objects into the ear canal.

Cerumen impaction

- **Cerumenolytics:** Use ear drops containing hydrogen peroxide or carbamide peroxide to soften the wax.
- **Irrigation:** Perform ear irrigation with warm water or saline, if appropriate, to remove softened wax.
- **Manual removal:** In cases of severe impaction, manual removal by a healthcare provider may be necessary.
- **Avoidance:** Advise against inserting objects into the ear canal to prevent future impactions.

Homoeopathic approach

In homeopathy, the treatment of otalgia (ear pain) is approached based on the principles outlined in Samuel Hahnemann's Organon of Medicine. The remedies are selected according to the totality of the symptoms and the individual's overall state of health. Here's how a homeopathic treatment approach for otalgia would align with Hahnemann's Organon of Medicine.

1. Understanding the totality of symptoms

According to Aphorism 6 of the Organon, the totality of symptoms is critical in determining the correct remedy. This means that the entire symptom picture, including the type, location, and nature of the pain, as well as associated symptoms and patient characteristics, should be considered.

2. Selecting the Remedy

Based on Aphorism 7, which states that the homeopathic remedy should match the totality of the symptoms as closely as possible, the following remedies might be considered^[18]:

- **Aconitum Napellus (Aphorism 6, 7)**

Indication: Sudden onset of severe ear pain following exposure to cold or a fright. The pain is intense and may be accompanied by anxiety and restlessness.

Patient presentation: The patient might have a dry, inflamed ear canal and prefer warmth. The remedy aligns with the symptoms of a sudden onset and high anxiety, matching Aphorism 7's focus on a close match to the symptom picture.

- **Belladonna (Aphorism 6, 7)**

Indication: Intense, throbbing pain in the ear with possible redness and heat. Pain often comes on suddenly and may be accompanied by high fever.

Patient presentation: The patient may have sensitivity to light and noise, and the symptoms may improve with cool applications, matching the intense and sudden nature described in Aphorism 7.

- **Pulsatilla (Aphorism 6, 7)**

Indication: Pain with a sensation of fullness, often associated with colds or respiratory issues. The pain tends to worsen in a warm room and improve in fresh air^[16].

Presentation: Emotional symptoms such as weepiness and a desire for company are common, fitting Aphorism 6's focus on overall symptom picture and Aphorism 7's requirement for remedy similarity to the patient's state.

- **Hepar Sulphuris (Aphorism 6, 7)**

Indication: Sharp, stitching pain, often with pus formation. The pain worsens from cold and improves with warmth.

Patient presentation: The patient might be sensitive to cold air, with a tendency to develop abscesses, aligning with Aphorism 7's detailed symptom correspondence.

- **Mercurius Solubilis (Aphorism 6, 7)**

Indication: Ear pain with a sensation of fullness, associated with thick, yellow discharge and possibly a sore throat.

Patient presentation: The patient may experience excessive salivation and a bad taste in the mouth, reflecting a broader symptom profile in line with Aphorism 7.

3. Understanding the Totality of Symptoms

Aphorism 6: "The physician's highest and only calling is to make the sick healthy, to cure, as it is called."

- **Application:** In the treatment of otalgia, this aphorism emphasizes that the goal is to restore the patient to a state of health. The remedy selection is based on a thorough understanding of the patient's overall symptom picture rather than just treating the localized pain^[18].

Aphorism 7: "The only way to achieve this is by discovering the most similar remedy that matches the totality of the symptoms."

- **Application:** The homeopath must find a remedy that matches not only the ear pain but also all accompanying symptoms and the patient's general state. This involves a detailed case-taking process to understand the complete symptom profile.

4. Remedy Selection Based on Symptom Presentation

Aphorism 8: "To this end, the physician should take into account all the symptoms of the disease, including the general and particular symptoms."

- **Application:** For otalgia, this means considering both local symptoms (e.g., pain in the ear) and general symptoms (e.g., fever, irritability). The remedy should address both aspects.

5. Individualizing Treatment

Aphorism 9: "The remedy must be adapted to the individual characteristics of the patient."

- **Application:** Homeopathy treats the patient as a whole. The remedy should be selected based on the unique characteristics of the individual, including their emotional state, general health, and specific symptoms of the ear pain^[19].

Aphorism 13: "In every disease, one single remedy is most appropriate and best suited to remove all symptoms."

- **Application:** Homeopathy aims to find the single remedy that best matches the entire symptom picture of

the patient. For example, if a patient has sharp ear pain, fever, and irritability, a remedy like Belladonna might be chosen if it matches these symptoms well [18].

6. Choosing the Right Potency and Frequency

Aphorism 266: "In chronic diseases, the remedy should be repeated at the appropriate intervals according to the patient's reaction."

- **Application:** For otalgia, especially if it is a chronic condition, the remedy's potency and frequency of administration should be adjusted based on the patient's response. Regular follow-up is necessary to monitor progress and make adjustments.

7. Observing the Patient's Reaction

Aphorism 15: "The physician should be observant and watch the effect of the remedy on the patient."

- **Application:** After administering the remedy, it is crucial to observe how the patient responds. The remedy should improve the symptoms, and any adverse reactions or lack of improvement should be noted and addressed.

8. Holistic Care

Aphorism 2: "The totality of the symptoms in each case is what constitutes the disease."

- **Application:** This aphorism reinforces the importance of considering the entire symptom profile, not just the ear pain. For instance, if a patient with otalgia also has a cold or a cough, the remedy should address both the ear pain and the accompanying symptoms.

9. Avoiding Harm

Aphorism 100: "The physician's treatment should be gentle, causing as little disturbance as possible."

- **Application:** Homeopathic remedies are chosen to cause minimal disturbance while aiming for maximal therapeutic effect. The remedies are used in minute doses to stimulate the body's own healing processes without causing additional harm [19].

10. Following up and adjusting treatment

According to Aphorism 15, after administering the remedy, follow-up is crucial to assess its effectiveness and make necessary adjustments. This involves:

- **Monitoring response:** Evaluating changes in symptoms and overall well-being.
- **Adjusting the remedy:** If symptoms persist or change, the remedy or potency may need to be adjusted.

In homeopathy, the treatment of otalgia is guided by the principles of matching the remedy to the totality of symptoms, as described in the Organon of Medicine. By considering the overall symptom picture and individual patient characteristics, homeopathic remedies can be selected and adjusted to effectively address the condition.

Therapeutics

- **Belladonna:** For sudden, intense ear pain, especially when it is accompanied by redness, heat, and throbbing. It might be used if the pain comes on suddenly and is severe.
- **Pulsatilla:** The ear pain that is associated with a feeling of fullness or a sensation of pressure. It is often suggested if the pain is worse in the evening and the

person feels better in open air [14].

- **Mercurius solubilis:** This can be considered if the ear pain is accompanied by a discharge that is yellow or green and has a foul odor. It may be used when there is also a lot of salivation and sweating.
- **Hepar sulphuris:** sharp, splinter-like ear pain that is worse from cold air or touch. It is often indicated if there is also a tendency for ear infections [16].
- **Chamomilla:** Chamomilla may be useful for ear pain in children, especially if the pain is severe and the child is very irritable and restless.
- **Calcarea Carbonica:** The ear pain is accompanied by a sensation of fullness or heaviness and if there is a tendency for frequent ear infections [17].

Background of the study

Young KD. Assessment of acute pain in children. Clinical Pediatric Emergency Medicine. 2017 Dec 1;18 (4): 235-41.

- The review emphasizes the importance of pain assessment in emergency care, which is crucial given that effective pain management can significantly impact patient outcomes and comfort.
- By focusing on children, it correctly identifies the unique challenges that arise due to their developmental stages and varying abilities to communicate and understand pain. An essential part of the care provided in the emergency room is pain evaluation. Since children's developing abilities to understand concepts, express vocally, and use typical pain intensity rating scales are always changing, diagnosing pain in them presents particular obstacles. Behavioral measures are used to rate the level of pain in young, non-communicating intellectually challenged children.
- Children in school utilize face scales to rate their own pain, whereas older preteens and teenagers can rate their pain using a vocal number rating system. Beyond just evaluating severity, there are a plethora of other crucial components of the pain experience to consider, including location, cause, neuropathology, start, provokers and palliators, quality, radiation, and timing.

Ingvarsson L. Acute otalgia in children-findings and diagnosis. Acta Paediatrica. 1982 Sep;71 (5):705-10

A collection of 117 children, aged 15 to 15, who had acute otalgia were evaluated to determine whether otalgia or any other symptoms were so closely associated with acute otitis media (AOM) that an otoscopic examination was not required.

Of patients with a diagnosis, 46% had AOM, 15% had simplex otitis, 17% had serous otitis media (SOM), and 22% had normal eardrums. In 78% and 30% of the cases, respectively, fever and spontaneous eardrum perforation were present in children with AOM. For the majority of the children (54% who did not have AOM), the otalgia could be categorized as referred pain because it was caused by things like throat pain, nasal blockage, or discomfort when swallowing. Other causes included significant hearing loss, teething, or general irritability.

Methodology

Study setting

A total of 15 cases was selected from Sarada Krishna Homeopathic Medical College, Kulasekaram, Tamil Nadu,

India., IPD and /OPD based on both inclusion and exclusion criteria. For 15 subjects a complete case was taken and severity of pain was assessed with Wong Baker pain scale and according to acute totality and based on severity of pain Individualised homoeopathic medicines were given. And potency was given according with intensity of pain, the results were analysed as before and after medication. The improved and not improved cases were also analysed. The significance of the treatment before and after using Individualised Homoeopathic medicines was analysed.

Study population

The required study population was 15 children under paediatric age group

Inclusion criteria

- Children with acute otalgia.
- Cases under paediatric age group.

Exclusion criteria

- Children with Secondary Complication in Ear
- Children Who already take Medication for any other Ear Complaint

Procedure

A total of 15 cases were selected from Sarada Krishna Homeopathic Medical College, Kulasekaram, Tamil Nadu, and India. IPD and, OPD based on both inclusion and exclusion criteria. For 15 subjects a complete case was taken and severity of pain was assessed with WONG BAKER PAIN SCALE and according to acute totality and based on severity of pain Individualised homoeopathic

medicines were given. And potency also given according with intensity of pain, the results was statistically analyzed before and after medication. The improved and not improved cases also analyzed. The significance of the treatment before and after using Individualised Homoeopathic medicines also analyzed.

Observation and results

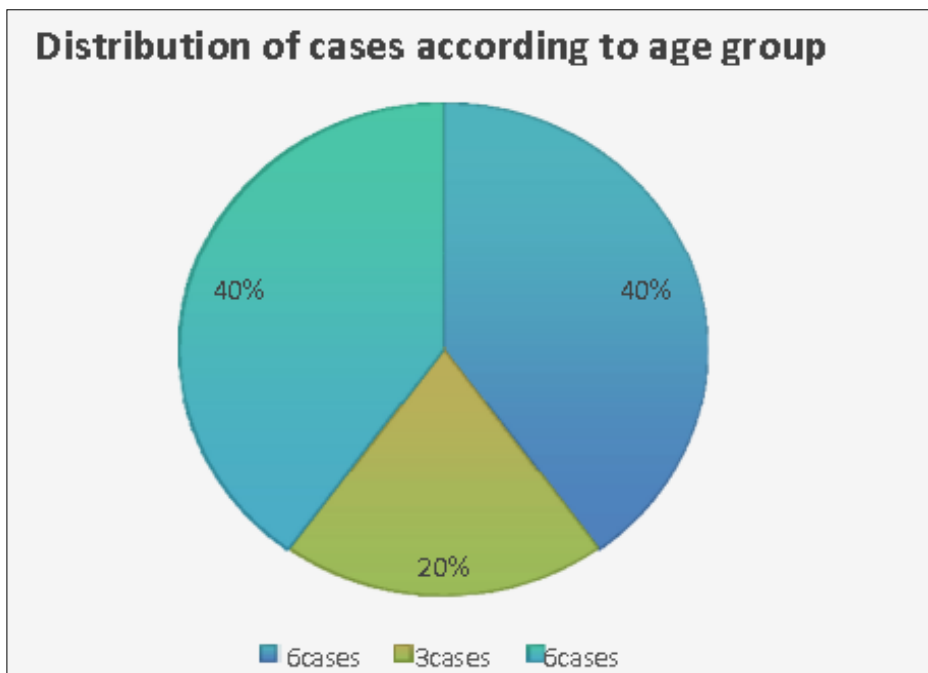
A total of 15 cases selected from Sarada Krishna Homeopathic Medical College, Kulasekaram, Tamil Nadu, India. OPD cases based on both inclusion and exclusion Criteria. For 15 subjects a complete case was taken and severity of pain was assessed with Wong Baker pain scale and according to acute totality and based on severity of pain Individualised homoeopathic medicines were given. The observations were analyzed under Age groups, Gender, chief complaint, associated complaint, Ailments from, general management, medicinal treatment, scoring in before and after treatment, improved cases. And different graphs will be depicted under.

1. Age groups

In this study, we examined the involvement of various age groups to understand the distribution and impact of participation across different developmental stages. This section highlights the significance of age-related variations.

Table 1: Distribution of cases according to age groups

Age group	No. of cases	Percentage
4-8 years	6 cases	40%
9-13 years	3 cases	20%
14-18 years	6 cases	40%



Graph 1: Distribution of cases according to age groups

Graph 1, Pie chart visually represents the distribution of age groups and allowing readers to understand the significance and implications of these variations. The pie chart illustrates the distribution of cases across various age groups. It shows that the age groups of 4 years, 8 years, 11 years, and 17 years each account for 13.33% of the total cases, making

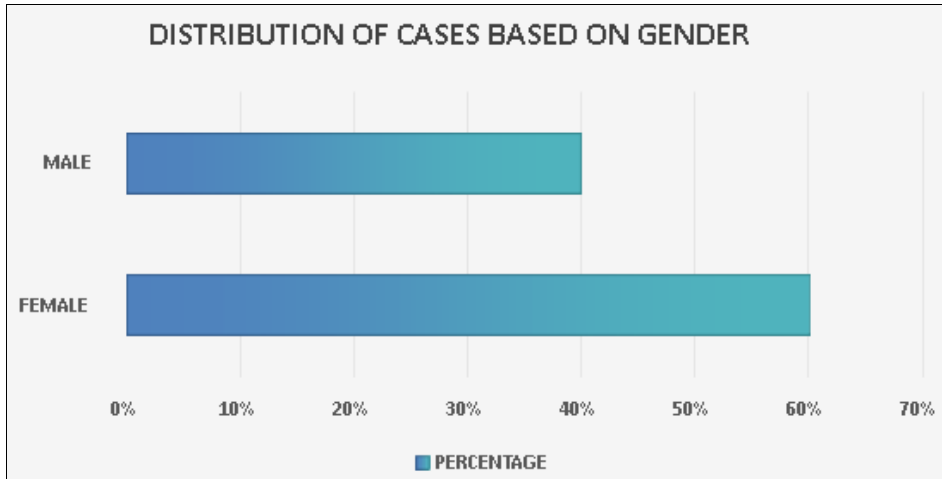
them the most prevalent. The 5 years, 7 years, 9 years, 14 years, 16 years, and 18 years age groups each represent 6.67% of the cases. This graphical representation highlights the varied distribution of cases across different ages, with certain age groups having notably higher representation compared to others.

2. Gender

Incorporating gender into this involves examining how gender identity and roles impact or interact with the phenomena under investigation. The gender distribution in your dataset with 15 cases (9 female and 6 male).

Table 2: Distribution of cases based on gender

Gender	No. of cases	Percentage
Female	9 cases	60%
Male	6 cases	40%



Graph 2: Distribution of cases based on gender

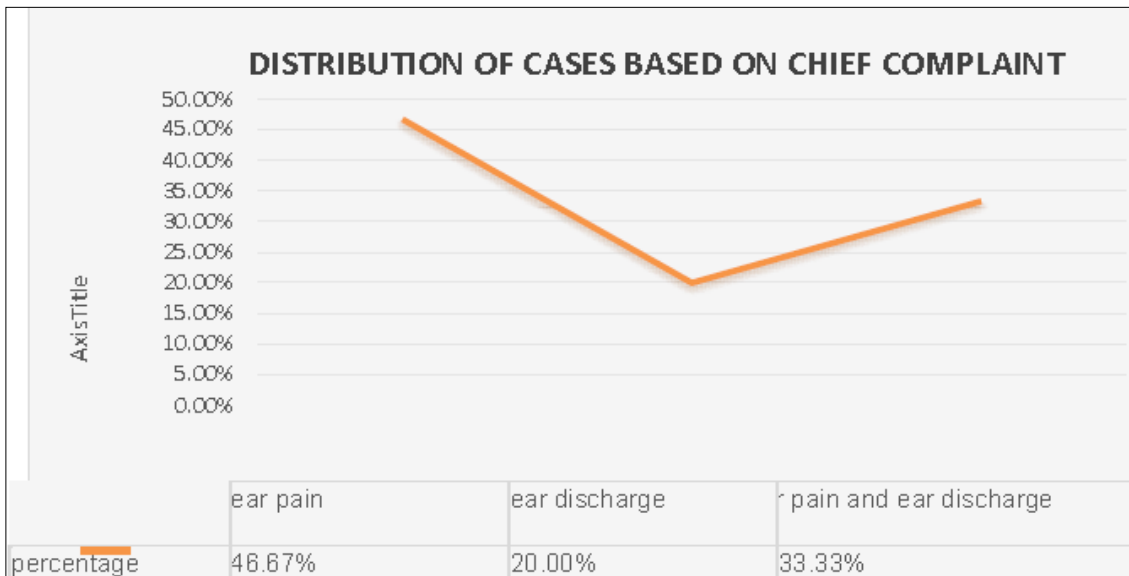
Graph 2, Bar chart visually represents the gender involvement and allowing readers to understand the significance and implications of these variations. The pie chart illustrates the gender distribution among the 15 cases, revealing that 60% of the cases are female, 40% are male, and no cases fall into other gender categories. This graphical representation highlights the proportion of each gender, showing a higher prevalence of female cases compared to male cases.

complaint in pediatric populations, often presenting as either ear pain, ear discharge, or a combination of both. Understanding these chief complaints is essential for accurate diagnosis and effective management in children

Table 3: Distribution of cases based on chief complaint

Chief complaint	No. of cases	Percentage
Only ear pain	7 cases	46.67%
Only ear discharge	3 cases	20.00%
Ear pain and ear discharge	5 cases	33.33%

3. Chief complaint: Otalgia, or ear pain, is a common



Graph 3: Distribution of cases based on chief complaint

Graph 3, The line chart visually represents the distribution of chief complaints in pediatric otalgia cases. It shows that 'Only Ear Pain' accounts for 46.67% of the cases, 'Only Ear Discharge' represents 20.00%, and 'Both Ear Pain and Ear Discharge' constitutes 33.33% of the cases. This graphical

representation highlights the prevalence of each symptom category, with 'Only Ear Pain' being the most common complaint, followed by 'Both Ear Pain and Ear Discharge', and 'Only Ear Discharge' as the least frequent complaint".

4. Associated complaints

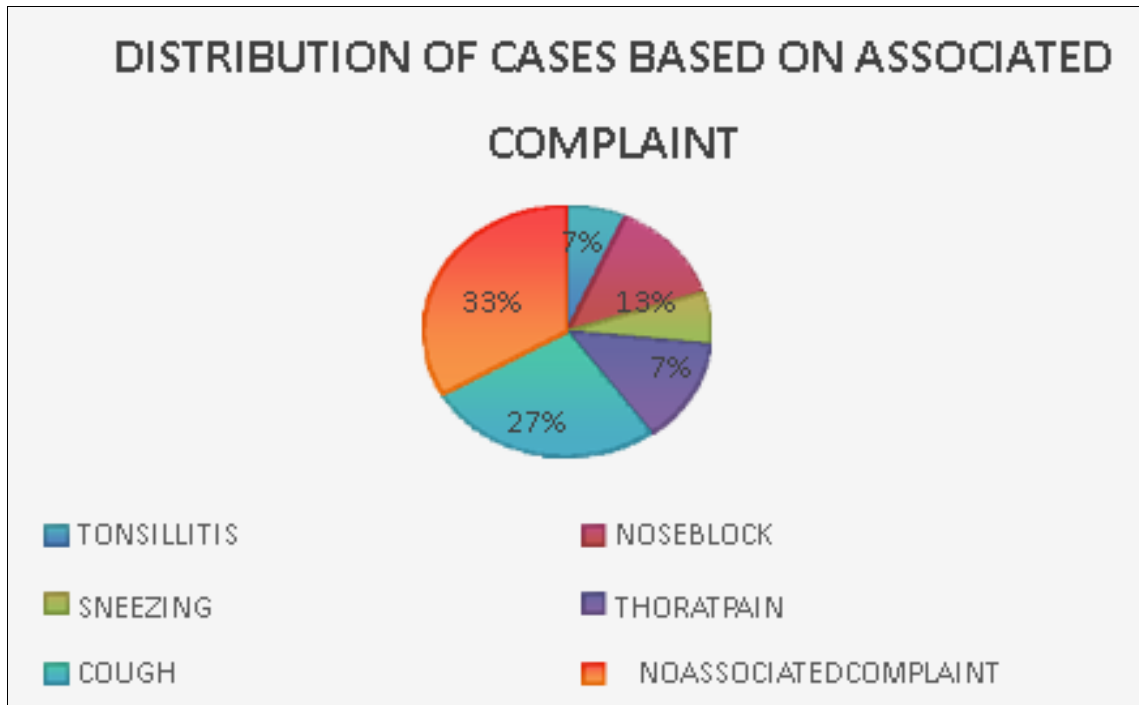
Otalgia is frequently accompanied by other complaints such

as tonsillitis, nasal block, sneezing, throat pain, and cough. Each of these symptoms can offer valuable clues regarding the source of the ear pain by elucidating the interplay

between these symptoms, we aim to enhance our understanding of otalgia and improve clinical outcomes visually represent the associated complaints in otalgia cases,

Table 4: Distribution of cases based on associated complaint

Associated complaint	No. of cases	Percentage
Tonsillitis	1 case	6.67%
Nose block	2 cases	13.33%
Sneezing	1 cases	6.67%
Throat pain	2 cases	13.33%
Cough	4 cases	26.67%
No associated complaint	5 cases	33.33%



Graph 4: Distribution of cases based associated complaint

Graph 4, Pie chart visually represents the associated complaint and the column chart illustrates the distribution of associated complaints in otalgia cases, with a total of 15 cases analysed. It reveals that 'Cough' is the most prevalent associated symptom, accounting for 26.67% of cases, followed by 'No Associated Symptom' at 33.33%. 'Nose Block' and 'Throat Pain' each represent 13.33% of the cases, while 'Tonsillitis' and 'Sneezing' each account for 6.67%. This graphical representation effectively highlights the relative frequency of each associated complaint, providing insights into the common symptom patterns observed in the study.

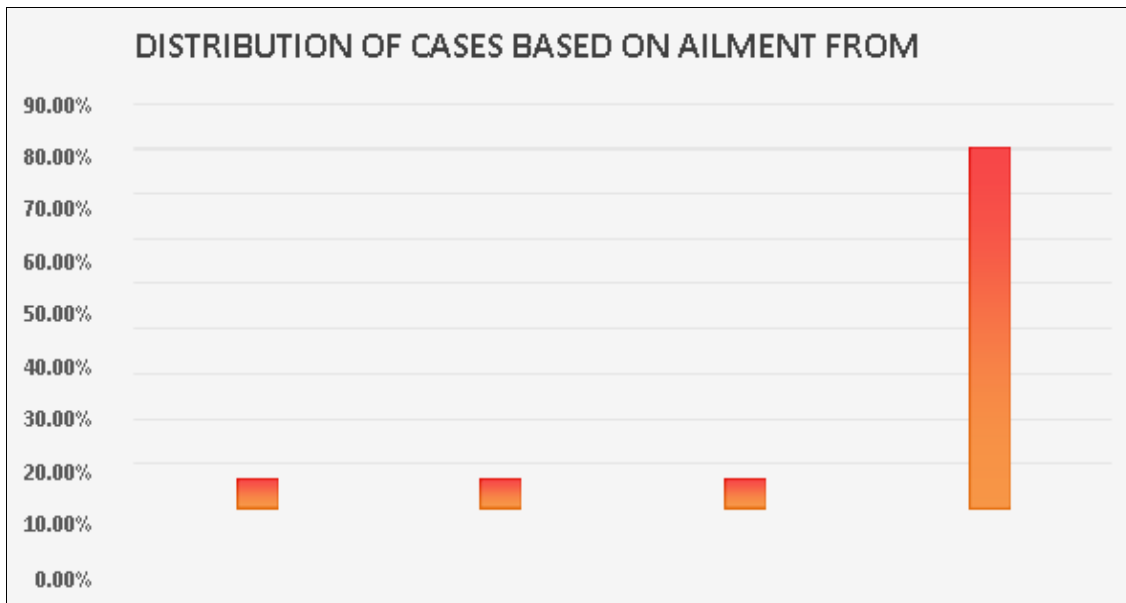
5. Aliments from: Otolgia, or ear pain, in the pediatric age group can arise from various environmental and behavioral

factors. In particular, exposure to cold air, consumption of cold foods such as watermelon, and participation in activities like cold river bathing have been noted to contribute to the onset or exacerbation of ear pain in children.

These percentages represent the proportion of each ailment from relative to the total number of cases.

Table 5: Distribution of cases based on ailment from

Ailment from	Cases	Percentage
Cold air	1 Cases	6.67%
Watermelon consumption	1 Cases	6.67%
River bathing	1 Cases	6.67%
No ailment from	12 Cases	80.00%

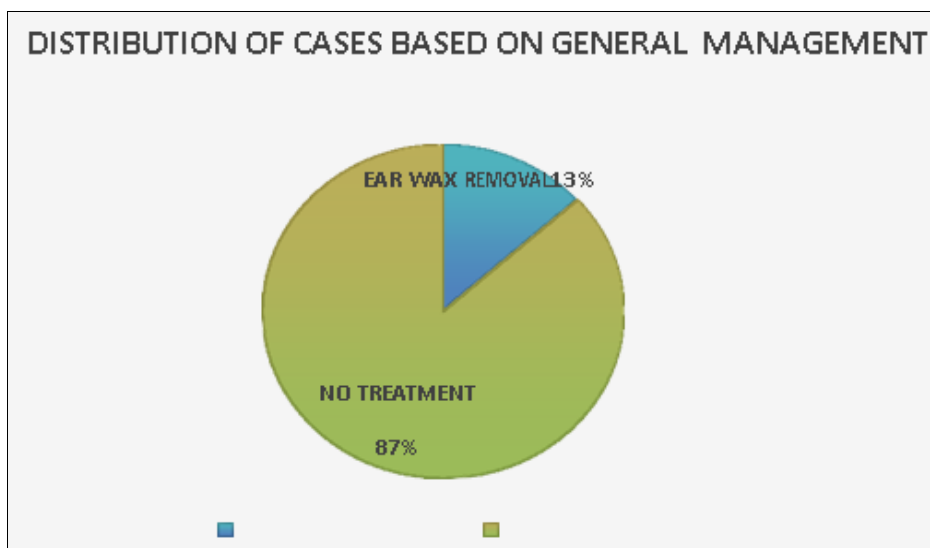


Graph 5: Distribution of cases based on ailment from

Graph 5, The Bar chart illustrates the distribution of ailments associated with otalgia among a total of 15 cases. It reveals that 'Cold Air,' 'Watermelon consumption and 'Cold River Bathing' each account for 6.67% of the cases, while 'No Ailment' is the most prevalent category, representing 80.00% of the cases. This representation effectively highlights that the majority of cases did not have an identifiable ailment, with cold air, watermelon consumption, and Cold River bathing being less common triggers.

6. General management

Otalgia, or ear pain, can arise from a variety of causes, including infections, inflammation, or the accumulation of ear wax. Effective management of otalgia often involves addressing underlying factors that contribute to discomfort. Among the common management strategies are ear washing and ear wax removal, both of which can play a critical role in alleviating symptoms and preventing further complications.



Graph 6: Distribution of cases based on general treatment

Table 6: Distribution of cases based on general management

General management	Cases	Percentage
Ear wax removal	2 cases	13.33%
No General treatment	13 cases	86.67%

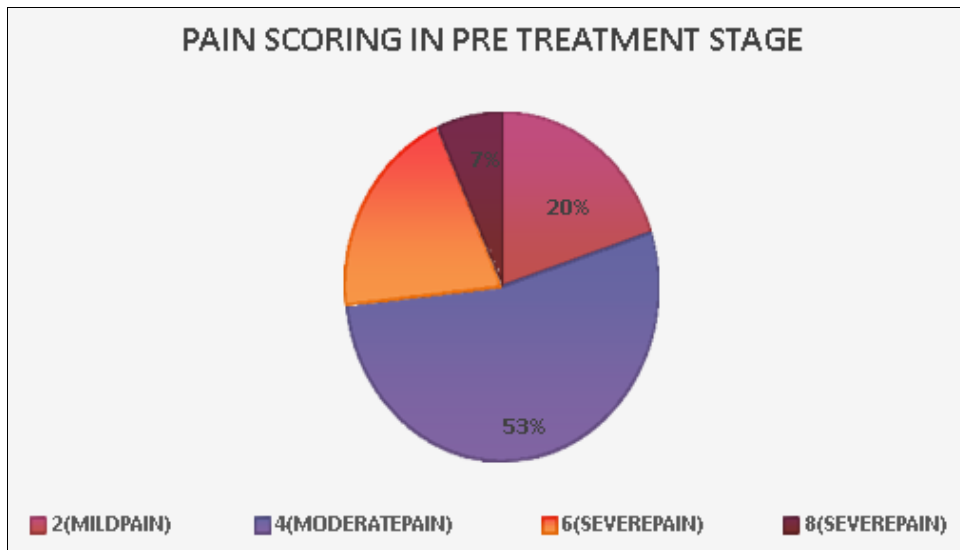
The pie chart illustrates the distribution of management approaches for otalgia among a total of 15 cases. It shows that 13.33% of the cases involved treatment for ear wax, while 86.67% of cases received no treatment. This graphical representation highlights the predominant use of no treatment in managing otalgia, with a smaller proportion of cases being managed through ear wax removal.

7. Observation based on Wong Baker pain scale in pre-treatment stage

In the pre-treatment stage of otalgia cases among paediatric patients, the Wong-Baker Faces Pain Rating Scale was utilized to assess the severity of pain experienced by the children. This scale, which uses a series of faces with varying expressions to represent different levels of pain, provides a subjective measure of pain intensity as reported by the patients.

Table 7: Distribution of cases based on pain scoring in pre-treatment stage

Wong Baker scale score	No. of cases	Percentage
2 (Mild pain)	3 Cases	20%
4 (Moderate pain)	8 Cases	53.33%
6 (Severe pain)	3 Cases	20%
8 (Very severe pain)	1 Cases	6.67%



Graph 7: Distribution of cases based on pain scoring in pre-treatment stage

Graph 7, The pie chart illustrates the distribution of pain categories among 15 cases: Mild Pain accounts for 20%, Moderate Pain comprises 53.33%, Severe Pain represents 20%, and Very Severe Pain makes up 6.67% of the total case

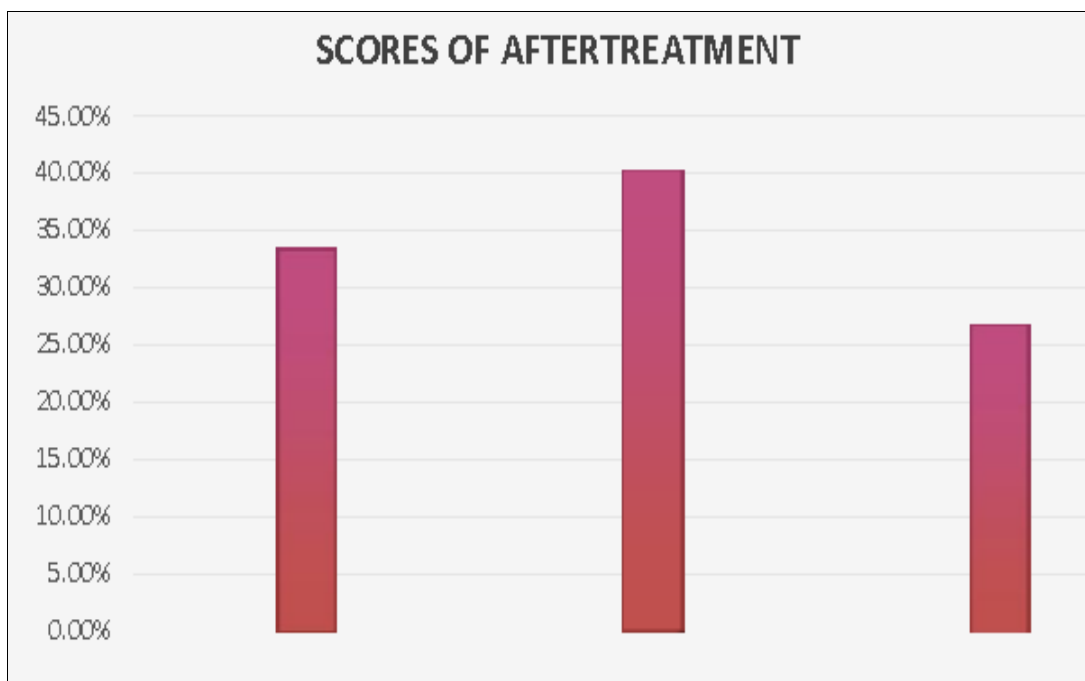
Observation based on Wong Baker pain scale in post-treatment stage

Following the treatment of otalgia in the pediatric age group, the Wong-Baker Faces Pain Rating Scale was used to assess pain levels and the effectiveness of the prescribed medications. The

scale, which ranges from 0 (no pain) to 10 (worst pain imaginable), provides a visual and subjective measure of pain intensity reported by the children.

Table 8: Distribution of cases based on scores of after treatment

Wong Baker score after treatment	No. of cases	Percentage
0 (No pain)	5 Cases	33.33%
2 (Mild pain)	6 Cases	40%
4 (Moderate pain)	4 Cases	26.67%



Graph 8: Distribution of cases-based scores of after treatment

Observation based on Wong Baker pain scale in pre and post-treatment stage

Table 9: Distribution of cases based on scores of before and after treatment

No. of cases	Pretreatment score	Post-treatment score
3 Cases	2 (Mild pain)	0 (No pain)
8 Cases	4 (Moderate pain)	6 Cases 2 (Mild pain) 2 Cases 0 (No pain)
3 Cases	6 (Severe pain)	2 Cases 4 (Moderate pain) 1 Cases 0 (No pain)
1 Case	8 (Very severe pain)	4 (Moderate pain)

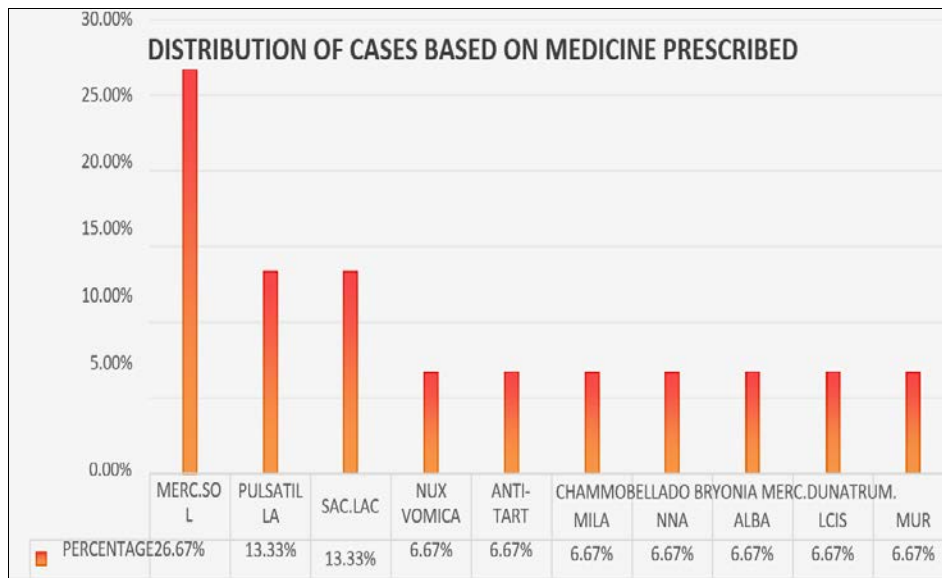
Among the cases, 3 individuals with mild pain (pre-treatment) experienced no pain post-treatment, 8 individuals with moderate pain (pre-treatment) showed improvement with 6 reporting mild pain and 2 reporting no pain post-treatment, 2 individuals with no pain (pre-treatment) maintained no pain, 3 individuals with severe pain (pre-treatment) improved to 2 reporting moderate pain, 1 individual with no pain (pre-treatment) remained pain-free, and 1

individual with very severe pain (pre-treatment) improved to moderate pain post-treatment.

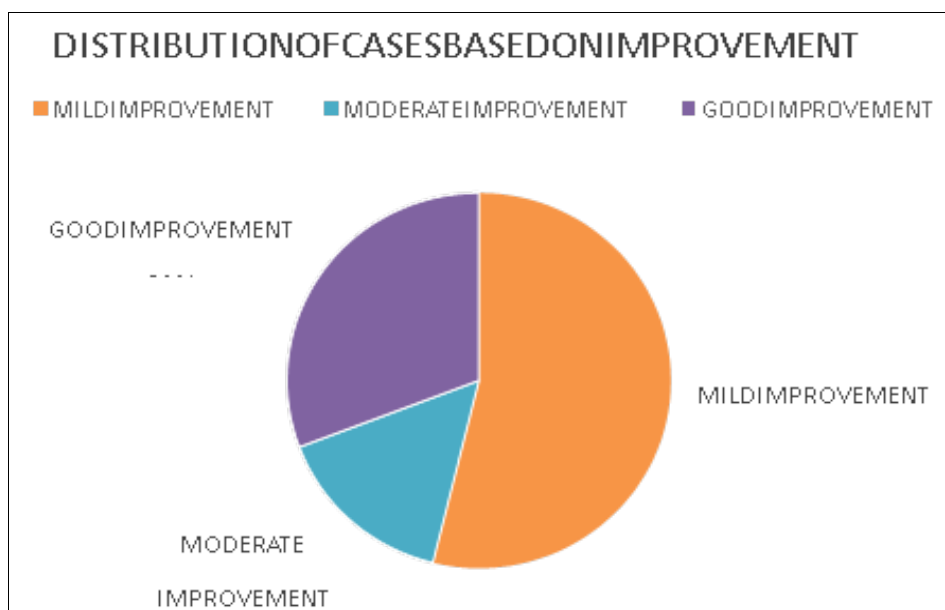
Distribution of cases based on medicine prescribed

Table 10: Distribution of cases based on medicine prescribed

Medicines	No. of cases	Percentage
Merc.SOL	4 Cases	26.67%
Pulsatilla	2 Cases	13.33%
Sac.LAC	2 Case	13.33%
Nux vomica	1 Case	6.67%
Anti-tart	1 Case	6.67%
Chammomila	1 Case	6.67%
Belladonna	1 Cases	6.67%
Bryonia alba	1 Case	6.67%
Merc.Dulcis	1 Case	6.67%
Natrum.Mur	1 Case	6.67%



Graph 10: Distribution of cases based on improvement



Graph 11: Distribution of cases based on improvement

Table 11: Distribution of cases based on improvement

Results	No. of cases	Percentage
Mild improvement	7 Cases	53.85%
Moderate improvement	2 Cases	15.38%
Good improvement	4 Cases	30.77%

Discussion

This research provides an insightful analysis of otalgia in the pediatric age group, focusing on pain management through various prescribed treatments. The study highlights several key findings:

- As far in my study live included the age group from 1-18 yrs and got the results as good improvement in all the cases with homoeopathic treatment considering the other study they done it with age group limitation of 6 years.
- To ascertain the prevalence and consequences of acute otitis media (AOM) in children under the age of six, we carried out an epidemiological, observational cohort study. The year before enrollment and the year after enrollment were used to retrospectively evaluate medical documents in order to gather data on physician-diagnosed AOM. 5776 youngsters from Germany, Italy, Spain, Sweden, and the UK were included in the study. In the prospective study period, the incidence of AOM was 256/1000 person-years [95% confidence interval (CI) 243-270]. Spain had the greatest incidence (328, 95% CI 296-363), while Italy had the lowest (195, 95% CI 171-222) rate. Less than 1% of the instances had complications recorded. In 7% of cases, spontaneous tympanic membrane perforation was found. The results of the prospective and retrospective studies were comparable and demonstrated the high frequency in childhood^[11].
- As far as my study is concerned, I have included associated symptoms such as tonsillitis, throat pain, nose block, and cough. In contrast, this study primarily focused on evaluating the effectiveness of homeopathic medicines in managing otalgia without a specific emphasis on these associated symptom as they included the ear ache as a associated complaint as mainly focused on respiratory infection.
- 138 kids in all, both with and without severe otitis media, experienced upper respiratory infections. A sore throat (RR = 3.2; CI = 1.1 to 11; P = 0.027), night restlessness (RR = 2.6; CI = 1.1 to 6.9; P = 0.024), fever (RR = 1.8; CI = 1.1 to 3.2; P = 0.025), and earache (RR = 21.3; 95% confidence intervals (CI), 7.0 to 106, P < 0.0001) were the symptoms most strongly associated with acute otitis media. Based solely on the symptoms of nocturnal restlessness and earache, 71% of the patients were accurately diagnosed, according to a logistic regression study. The parents' sensitivity and specificity for predicting the presence of acute otitis media were 71 and 80%, respectively (positive predictive value, 51%; negative predictive value^[12]).
- As far as my study live used Wong Baker pain scale as in study done a randomized study was conducted 102 children and got effective results whereas this study involves the antibiotic usage.
- AOM, or acute otitis media, is a prevalent infection among children. By the time they are 4 years old, about 60% of kids have experienced at least one episode of AOM. It is also one of the primary causes of pediatric antibiotic prescriptions. Numerous studies have demonstrated that most pediatric AOM cases resolve on their own without the need for antibiotics. One of the main factors contributing to antibiotic resistance is the overuse of antibiotics. Antibiotics come with an inherent risk of side effects, such as rash, diarrhea, and vomiting, in addition to their increased expense. Methods: A randomized clinical trial was conducted on 102 children, aged 2 to 12 years, who were diagnosed with AOM. The purpose of the trial was to compare the outcomes of treating symptoms alone versus treating symptoms along with an antibiotic^[13].
- **Pain scores and treatment effectiveness:** The data on Wong-Baker Pain Scale scores before and after treatment demonstrates the varying degrees of effectiveness of the prescribed medications. Medications such as Sac Lac/1D, Bryonia 200/1D, Belladonna 200/1D, Nux Vomica 200/1D, Anti-Tart 200/1D, and Chamomilla 200/1D showed 'Good Improvement,' indicating a complete reduction in pain from mild or severe to no pain. These results underline the efficacy of these treatments in achieving significant pain relief. In

contrast, Merc.Sol 200/1D, Pulsatilla 200/1D, Merc. Dulcis 200/1D, and Natr. Mur 200/1D, though effective, provided 'Moderate Improvement,' reducing pain from moderate to mild or moderate pain.

- **Medicine categorization:** The classification of medicines into 'Good Improvement,' 'Moderate Improvement,' and 'Excellent Improvement' categories based on pain score reduction provides a clear understanding of their effectiveness. This categorization helps in identifying which medications are most effective for complete pain relief and which offer substantial, but less complete, alleviation
- **Management and ailments:** The investigation into the impact of factors like cold air exposure, watermelon consumption, and cold river bathing on otalgia provides insights into potential environmental and dietary triggers. This information can help in advising patients and their families on preventive measures to avoid exacerbating the condition.
- **General management:** The observation of treatment strategies, including ear washing and ear wax removal, indicates that while these interventions are common, their effectiveness varies based on individual cases and underlying conditions.

Here, MERC.SOL was commonly prescribed for otalgia in pediatric age group and which showed an astounding result with 53.85% of cases has marked improvement. This implies that MERC.SOL is an effective choice of treatment for otalgia in pediatric age group. In conclusion; this study signifies that homoeopathy with its holistic approach is an ideal choice of treatment for otalgia in pediatric age group.

Conclusion

The research highlights the effectiveness of various treatments for otalgia in the paediatric population, showing that some medications provide complete pain relief while others offer significant, though partial, improvement. The study also emphasizes the importance of considering associated complaints, environmental factors, and age-specific treatment approaches. Future research should focus on refining treatment protocols, exploring additional management strategies, and investigating the long-term outcomes of these interventions in paediatric otalgia cases. This study provides a comprehensive analysis of otalgia in the paediatric population, focusing on the effectiveness of various treatments and associated factors. The findings indicate that a range of prescribed medications significantly impacts pain relief, with some achieving complete resolution and others offering substantial but partial improvement.

Key conclusions include

On assessing the pre and post Wong baker pain scale, following were the conclusion made.

- The symptoms of otalgia initially manifest the age group of 1-18 yrs. in children.
- 60% cases were female and 40% were male as with age factor we cannot predict the prevalence rate or dominance.
- The chief complaints among the cases ear pain alone (46.67%), followed by ear discharge alone (20.00%) and both ear pain and discharge (33.33%). So, ear pain alone was dominating majority of cases.
- Associated complaints included cough (26.67%), throat pain (13.33%), nose block (13.33%), sneezing (6.67%), tonsillitis (6.67%), and no associated complaints (33.33%). as in associated complaints cough was the dominating factor compared other associated complaint.
- Ailments from specific triggers were less common, with cold air, watermelon consumption, and river bathing each accounting for 6.67% of cases, while 80.00% of cases had no identifiable ailment from triggers in this study ailment factor count was less many children had an attack of otalgia doesn't have ailment factor.
- The commonly used medicine was MERC.SOL, which were

found to be effective in the treatment of otalgia.

- These scores were evaluated and thus we can conclude that homoeopathic medicines are effective in the treatment of otalgia.

Summary

A prospective study was conducted at Sarada Krishna Homeopathic Medical College OPD, 15 paediatric cases were evaluated based on specific inclusion and exclusion criteria. The age distribution of the cases was as follows: 6 cases (40%) were between 4-8 years, the chief complaints among the cases were predominantly ear pain alone was (46.67%). Associated complaints included cough (26.67%). Ailments from specific triggers were less common, with cold air, watermelon consumption, and river bathing each accounting for 6.67% of cases, while 80.00% of cases had no identifiable ailment from triggers. In terms of general management, 13 cases (86.67%) received no general treatment. In Wong Baker pain scale 53.33% had moderate pain. Comparative analysis of pre-treatment and post-treatment scores indicated that 3 cases improved from mild pain to no pain, 8 cases improved from moderate pain to a combination of mild pain and no pain, 2 cases remained pain-free, 3 cases improved from severe pain to moderate pain, 1 case improved from very severe pain to moderate pain. The distribution of medicines majorly prescribed was as follows: Merc. Sol was prescribed to 4 cases (26.67%). The results of the treatment were 7 cases (53.85%) experienced mild improvement, 2 cases (15.38%) had moderate improvement, and 4 cases (30.77%) showed good improvement. Here, MERC.SOL was commonly prescribed for otalgia in paediatric age group and which showed an astounding result with 53.85% of cases has marked improvement. This implies that MERC.SOL is an effective choice of treatment for otalgia in paediatric age group. In conclusion, this study signifies that homoeopathy with its holistic approach is an ideal choice of treatment for otalgia in paediatric age group.

Limitations

One major challenge is effective communication, as young children it was a struggle to articulate their symptoms clearly and may require extra care to provide detailed accounts, which can be inconsistent or incomplete. Developmental differences can also complicate symptom assessment, with variability in symptom expression and behavior across different age groups. As children, particularly younger ones, may resist or forget to take prescribed treatments, impacting the overall effectiveness of the intervention. Additionally, parents are over protective to their children as giving the medicine more than prescribed amount which leads to aggravation or amelortion of complaint which was difficult to detected.

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