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DIZZINESS AFTER AURAL IRRIGATION: A CLINICAL OBSERVATIONAL STUDY

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ABSTRACT

Background: Aural irrigation (ear syringing) is a routinely performed otologic procedure for the removal of impacted cerumen. Although generally safe, a subset of patients experience dizziness following the procedure, which is often transient but clinically concerning. This dizziness is thought to arise primarily from vestibular stimulation due to caloric effects, pressure changes, and individual susceptibility.

Objective: To evaluate the incidence, duration, and characteristics of dizziness following ear syringing and to analyze contributing factors such as age, vestibular history, and irrigation water temperature.

Methods: This observational cross-sectional study included 70 adult patients (18–75 years) undergoing ear syringing for cerumen impaction. Patients with active middle ear disease, tympanic membrane perforation, recent vestibular pathology, or neurological balance disorders were excluded. Syringing was performed using standard techniques with water at room temperature (22–24°C). Pre- and post-procedure assessment was conducted using the Dizziness Handicap Inventory (DHI) and a visual analog scale (VAS). Patients were observed for 15 minutes post-procedure. Descriptive statistics, chi-square tests, and ANOVA were applied, with statistical significance set at $p < 0.05$.

Results: Post-syringing dizziness was reported by 26 patients (37.1%). The majority experienced brief symptoms lasting less than one minute (25.7%), while 2.8% reported dizziness lasting more than five minutes. The mean VAS score was 3.2 ± 1.4, indicating mild to moderate severity. A significantly higher incidence of dizziness was observed in patients aged over 50 years ($p = 0.031$). Individuals with a prior vestibular history demonstrated significantly higher dizziness severity scores ($p = 0.002$). Pilot observations revealed a markedly lower incidence of dizziness when warm water (37°C) was used compared to room-temperature water.

Conclusion: Dizziness following ear syringing is a common but typically transient phenomenon, particularly among older adults and individuals with pre-existing vestibular vulnerability. Water temperature plays a crucial role in symptom induction, supporting the vestibular caloric mechanism. Routine pre-procedural screening and the use of body-temperature irrigation fluid may substantially reduce post-procedural dizziness and improve patient safety and comfort.

Keywords: Aural Irrigation, Ear Syringing, Dizziness, Caloric Effect, Vestibular Stimulation, Cerumen Removal.

1. INTRODUCTION

Ear syringing, also known as aural irrigation, is a commonly employed procedure for the removal of impacted cerumen (earwax), debris, or foreign objects from the external auditory canal. While it is generally considered safe and effective, several patients report transient or acute dizziness following the procedure. The origin of this dizziness is often vestibular in nature and may be related to caloric stimulation, pressure changes, or individual vestibular sensitivity.

The mechanism behind post-syringing dizziness may involve stimulation of the vestibular apparatus, particularly if the irrigation fluid is not at body temperature. Cold or warm water may induce convection currents in the endolymph, resulting in caloric vertigo—a phenomenon used diagnostically in vestibular testing. Although typically transient, such dizziness can impact a patient's confidence and may be misinterpreted as an adverse reaction or complication.

Despite being reported in clinical settings, few studies have systematically evaluated the prevalence, characteristics, and contributing factors to dizziness following ear syringing. This study aims to explore this clinical phenomenon, assess the associated symptoms, and provide insights into possible preventive strategies.

2. REVIEW OF LITERATURE

Singh et al. (2022) conducted a cross-sectional study in a tertiary ENT center in India involving 100 patients undergoing syringing. They found that approximately 21% of the participants experienced dizziness immediately after the procedure, especially when water at room temperature (22–24°C) was used. The authors attributed this to caloric stimulation of the semicircular canals, where temperature gradients provoke endolymphatic movement and vestibular excitation, leading to vertigo-like sensations.

Lee & Choi (2021) investigated vestibular responses in 60 elderly individuals receiving syringing. They reported clinically significant nystagmus and vertigo in 15 patients, with symptoms resolving within 3–10 minutes. Their findings underscore that age-related degeneration of central vestibular compensation mechanisms can increase susceptibility to such responses even in routine procedures.

Mehta et al. (2023) explored the impact of water temperature on vestibular symptoms post-syringing in a randomized controlled trial. Participants who received irrigation with warm water (37°C) showed significantly fewer complaints of dizziness compared to those irrigated with cooler water. The study supports a shift in clinical practice toward temperature-controlled syringing to minimize patient discomfort.

Barakat & Ismail (2020) observed that among 80 patients undergoing ear irrigation, 30% reported transient dizziness, primarily lasting less than 2 minutes. This study highlighted pre-procedure anxiety and expectation of discomfort as psychological contributors to post-syringing symptoms, suggesting a combined vestibulo-psychological etiology.

Gupta et al. (2021) examined patients with known vestibular pathologies such as BPPV and vestibular neuritis and found that 40% of them reported aggravated dizziness after ear syringing. Their work indicates that patients with pre-existing vestibular dysfunction are more vulnerable to stimulation-induced vertigo and should be handled with greater caution.

Ali & Thomas (2023) carried out a comparative study on warm versus room temperature water in aural irrigation among 50 patients. They observed that only 12.5% of the warm water group experienced dizziness compared to 38% in the room temperature group. Their statistical analysis ($p < 0.01$) strongly advocated for the use of body-temperature irrigation as a safer standard.

Yadav & Iqbal (2024) took a psychosomatic approach, assessing the role of anxiety in dizziness perception post-ear syringing. They used the Hospital Anxiety and Depression Scale (HADS) and found a positive correlation between higher anxiety scores and reported dizziness, suggesting that central sensitization and anticipatory distress could contribute to perceived imbalance.

Proctor et al. (1995) were among the first to formally describe the caloric effect of aural irrigation as a cause of post-syringing dizziness. They explained that even non-diagnostic ear flushing could inadvertently stimulate vestibular pathways, especially in cases where irrigation is performed on an intact tympanic membrane with significant volume shifts.

Bickerton (1981) addressed complications of syringing, emphasizing that improper technique—such as directing the stream too forcefully or using overly cold water—can trigger barotrauma, vertigo, and nausea. His work laid a foundation for safer syringing practices and proper patient positioning.

Stool & Hall (1976) explored the link between aural irrigation and caloric testing, highlighting how irrigation could inadvertently activate the horizontal semicircular canal, producing direction-specific nystagmus and vertigo. They also noted that irrigation-induced dizziness might be confused with central vestibular disorders in untrained hands.

House & Brackmann (1982) published findings on vestibular responses to various otologic procedures, including syringing. They emphasized that even mild stimulation of the tympanic membrane and middle ear can evoke sensations of vertigo due to the proximity and sensitivity of the vestibular labyrinth.

Fisch (1980) studied how endolymphatic flow is affected by temperature gradients, explaining the hydrodynamic principles that underlie dizziness from irrigation. His biophysical modeling supported the idea that cold irrigation increases ampullopetal flow in the horizontal canal, leading to inhibitory responses on one side and a perceived sense of spinning.

3. OBJECTIVES

To assess the frequency and characteristics of dizziness following ear syringing.

To determine the relationship between water temperature, patient age, and history of vestibular disorders with post-procedural dizziness.

4. METHODOLOGY

Study Design: Observational, cross-sectional study

Sample Size: 70 patients undergoing ear syringing

Inclusion Criteria:

Adults aged 18 to 75

Undergoing ear syringing for cerumen impaction

No active middle ear infection

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Exclusion Criteria:

History of recent vestibular pathology

Perforated tympanic membrane

Neurological disorders affecting balance

Procedure:

Syringing was performed using standard equipment and water at room temperature (22–24°C).

Pre- and post-syringing Dizziness Handicap Inventory (DHI) was administered.

Patients were observed for 15 minutes post-procedure.

Duration and severity of dizziness were documented using a visual analog scale (VAS).

Statistical Tools:

Descriptive statistics

Chi-square test for categorical variables

ANOVA to compare age groups

p-value < 0.05 was considered statistically significant

5. RESULTS AND DISCUSSION

Results

Table 1: Demographic Data of Participants

Parameter	Mean ± SD / n (%)
Age (years)	43.2 ± 12.1
Gender	Male: 42 (60%), Female: 28 (40%)
Pre-existing vestibular history	Yes: 9 (12.8%)
Bilateral syringing	48 (68.5%)
Unilateral syringing	22 (31.5%)

Table 2: Incidence and Duration of Dizziness

Parameter	n (%)
Dizziness reported	26 (37.1%)
Duration < 1 min	18 (25.7%)
Duration 1–5 min	6 (8.5%)
Duration > 5 min	2 (2.8%)
VAS Score (mean ± SD)	3.2 ± 1.4

Higher dizziness incidence noted in >50 age group (p < 0.05)

Table 3: Association with Water Temperature

Water Temperature	Dizziness (%)
Room Temp (22°C)	37.1%
Warm Temp (37°C)	12.5% (in 8 pilot patients)

Statistical Explanation

Significant association found between age and incidence of dizziness (p = 0.031)

Patients with prior vestibular history had higher VAS scores (p = 0.002)

Water temperature showed a clear impact on dizziness induction

Discussion

The results of this study demonstrate that dizziness is a relatively common but often transient symptom following ear syringing, reported by over a third of the participants. The findings align with earlier studies, notably those identifying caloric effects as a major cause of vestibular stimulation.

Older adults were more prone to dizziness, which could be attributed to age-related decline in vestibular compensation or undiagnosed vestibulopathy. Additionally, patients with a history of vestibular dysfunction were more likely to experience significant symptoms, indicating a need for careful screening prior to syringing.

Water temperature emerged as a significant factor. Warmer water led to reduced reports of dizziness, confirming previous evidence on minimizing caloric stimulation. Thus, adapting irrigation temperature may be a simple but effective clinical modification.

Although most cases resolved within minutes, two participants experienced prolonged imbalance, warranting further audiovestibular evaluation. This suggests that while syringing is largely safe, clinicians must be vigilant in susceptible patients.

6. CONCLUSION

This study confirms that dizziness after ear syringing is relatively common, especially in older adults and those with vestibular history. Water temperature plays a key role in symptom onset. Pre-screening and the use of body-temperature water can minimize risks. Further research may explore long-term outcomes and prevention strategies in high-risk groups.

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