



PRESERVING HEARING HEALTH - AN AYURVEDIC APPROACH

¹Dr Parvathy R Warriar, ²Dr Muhammed Nissam

¹PG Scholar, Department of Shalakyantra, Govt. Ayurveda College, Kannur,

²Assistant Professor, Department of Shalakyantra, Govt. Ayurveda College, Kannur,

ABSTRACT

Sensory inputs significantly influence brain organization and sensory functions. In Ayurveda, maintaining '*Prasanna Indriya*' (harmony of the senses) is vital for overall health, with hearing (*Srotra*) playing a pivotal role in sensory and motor responses. The WHO's 2021 report highlights hearing disorders as the third most impactful condition affecting quality of life in developed countries. The complex causes of hearing loss include occupational noise, genetics, ototoxic drugs, socio-economic factors, and environmental influences. Noise exposure, often underestimated, disrupts immune function, contributing to physical and mental health issues. Modern lifestyles and technological advancements have introduced new factors exacerbating hearing loss, such as frequent use of portable audio devices, exposure to loud music at concerts and clubs, alcohol and tobacco consumption, and underwater sports. These modern contributors resonate with Ayurvedic principles captured in the '*Trividha Hetu*' framework: '*Asatmyaindriyārtha Samyoga*' (inappropriate sensory engagement), '*Prajnaparadha*' (errors in judgment), and '*Parinama*' (effects of time and aging).

In Ayurveda, the principle of '*Nidana Parivarjana*' (avoiding causative factors) is paramount in disease management. Guided by this principle, the present work explores into the intricate aetiology of hearing loss, a global challenge, through the lens of Ayurveda. This paper provides a comprehensive review of preventive strategies, skilfully integrating contemporary medical insights with the enduring wisdom of Ayurveda, and juxtaposing modern understandings of hearing loss with timeless Ayurvedic principles.

Index terms: Hearing loss, *Trividha hetu*, Ayurveda, *Nidana parivarjana*, *Prajnaparadha*

INTRODUCTION

Indriya plays a crucial role in maintaining the delicate balance of homeostasis, allowing us to perceive and respond to our ever-changing environment. Ear, or "*Srotra*," holds a significant place as *panchajnanedriya*, deeply intertwined with the element of *akasha mahabhoota*, primarily perceives the essence of sound, or "*Shabda*". Apart from the dual function of hearing and balance, ear plays a pivotal role in development of spoken and written language, educational and social well-being, thus enhancing the quality of life. Hearing loss is the most common sensory deficit, affecting more than half a billion world-wide. Moreover, it is a potential risk factor for accelerated cognitive decline and cognitive impairment in the elderly associated with increased social isolation. Thus, the ear, plays a pivotal role in ensuring overall health and contribute to social harmony.

Hearing loss or *badiryam* is a multifaceted condition with diverse origins, encompassing a wide range of genetic and environmental factors contributing to its complex aetiology. In the ancient wisdom of Ayurveda,

"Karna," intertwined with the element of *akasha*, perceives the essence of sound. Understanding the balance of sensory experiences, Ayurveda acknowledges that the "*prajnaparadha*", "*parinama*", and "*asatmyendriyārtha samyoga* (disharmony)² "of our senses can lead to various ailments, including "*badhīryam*" (deafness). This holistic system of medicine places a strong emphasis on prevention, advocating for early screening and the avoidance of causative factors, or "*nidana parivarjana*," as a cornerstone for safeguarding against many ear-related conditions. Ayurveda's approach to ear wellness not only addresses the treatment of ailments but also emphasizes the profound significance of preserving and nurturing the auditory senses. Therefore, an attempt has been made to conduct a comprehensive and critical analysis of the causative factors contributing to hearing loss, drawing insights from the Ayurvedic literature, and to draw connections between these traditional insights and the contemporary lifestyles that contribute to the pathogenesis of auditory disorder.

OBJECTIVES

The primary objective of this endeavour is to conduct a comprehensive and critical analysis of the contemporary causative factors of hearing loss through the lens of Ayurvedic literature, revealing *nidana* and advocating *nidana parivarjanam*, thus harmonizing ancient wisdom with modern understanding for optimal hearing health."

MATERIALS AND METHODS

The search for articles was conducted on online databases including PubMed and Google scholar. Articles were screened based on their comprehensiveness in the elaboration of methodology, relevance, and feasibility. The selected articles were further reviewed along with information from classical ayurvedic textbooks and organized into a framework.

AETIOLOGY

Aetiology of hearing loss can be broadly categorized into genetic and non-genetic factors. Genetic factors include inherited conditions that affect the structure or function of the ear, while non-genetic factors encompass issues like noise exposure, infections, head trauma, ototoxic medications, and age-related changes³. Some individuals may experience congenital hearing loss, present from birth, while others develop it later in life due to a combination of genetic predisposition and environmental factors.

Over 60% of cases of Sensory neural hearing loss (SNHL) can be attributed to a genetic cause, classified as non-syndromic (most common) or syndromic conditions affecting auditory function at different sites along the auditory transduction pathway. Along this, there is also a strong correlation between ageing and hearing loss suggesting that many factors increase the risk or susceptibility to SNHL later in life. In the elderly, it poses a serious risk for cognitive decline, depression, and dementia, underscoring the critical need for early detection and management. On the other hand, hearing loss significantly impacts individuals across all age groups, from hindering language and social development in children to limiting employment opportunities and social engagement in adults. Viral infections, such as cytomegalovirus, are leading causes of congenital hearing loss, while traumatic injuries to the temporal bone can also result in substantial hearing impairment⁴.

In the present era, noise-induced hearing loss (NIHL) is also a widespread issue impacting various sectors, including construction, manufacturing, the armed forces, and the entertainment industry. Noise exposure initially causes temporary hearing sensitivity loss, which can recover over time. Prolonged or intense noise exposure can lead to permanent hair cell damage due to excessive neurotransmitter release. Additionally, hidden hearing loss may result from long-term exposure to loud sounds, affecting the connections between sensory nerve fibres and inner hair cells. Currently, the use of ototoxic drugs, such as platinum-based chemotherapeutics (e.g., cisplatin) and aminoglycoside antibiotics (e.g., neomycin and kanamycin), is a significant contributor to hearing loss, with both temporary and permanent effects depending on the medication and dosage⁴. Impacted earwax removal can pose risks when people resort to excessive cotton bud use. However, using sharp instruments like hairpins can damage the external auditory canal or perforate the tympanic membrane, potentially resulting in otitis externa.

Ayurveda's wisdom highlights genetic hearing loss, '*Badiryam*' as a condition rooted in '*janmabala pravvrtha vyadi*,' arising from factors like maternal diet and lifestyle choices, particularly the influence of '*vatala ahara vihara*'⁵. It can be interpreted as outcomes of the disruption in the harmony of individual sensory experiences ('*Asatmyendriyarthasamyoga*'), cognitive perceptual errors ('*Prajnaparada*'), and the inherent transformations of life ('*Parinama*'), offering a scientifically grounded understanding of their origins.

The term "*Asatmyendriyarthasamyoga*" can be dissected to reveal its profound essence. "*Asatmya*" implies impropriety, "*Indriya*" signifies the sensory organs, "*Arthas*" represents the objects of our senses, and "*Samyoga*" encapsulates the act of combining or linking. *Asatmyaindriyarthasamyoga* refers to the improper interaction between the senses and their respective objects, leading to either overstimulation or insufficient sensory activity⁶. This concept encompasses the improper convergence of our sensory perceptions, highlighting the intricate interplay between our senses and the world around us. The concepts of *Heena*, *Mithya*, and *Athiyoga* of the *indriya* results in *asatmendriyarthasamyoga* and are relevant to our modern lifestyles and environments⁷.

Pranajaparadha, a term combining "*Pranja*" for wisdom and "*Aparadha*" for actions against rules, refers to unwise or inappropriate behaviour. The core of *Pranja* relies on three key elements: *Dhi*, *Dhriti*, and *Smriti*. When these components are disrupted or imbalanced, it results in the occurrence of unfavourable actions, known as *Ashubha Karma*⁶.

*Vega dharana*⁸, the practice of suppressing natural urges, can have adverse effects on hearing. Prolonged suppression of reflexes like sneezing, coughing, or ear-clearing may increase pressure in the ear canal, potentially leading to conductive hearing loss. Additionally, the associated psychological stress can impact overall health, including auditory function. While *vega dharana* has its place in Ayurveda, its inappropriate or extended application can be detrimental to hearing health.

*Parinama*⁷ or *Kala*, can indeed be linked to the environmental factors that contribute to the development of hearing loss. The external environment, in its capacity to disrupt the body's equilibrium through abrupt and unnatural fluctuations in temperature, rainfall, dew, snow, wind, and polluted water, plays a pivotal role in triggering various ear infections. Ultimately, these environmental influences play a significant role in the onset of hearing loss.

When considering the *kala* – age of the individual and the chronicity of various disorders is also a risk factor of hearing loss.

DISCUSSION

In classical Ayurveda, understanding *Nidana* (the cause of a disease) is fundamental to effective prevention and treatment. Identifying the aetiologies of hearing loss is crucial, as *Asatmyaindriyarthasamyoga*, such as exposure to loud noise or frequent use of devices like iPods, can overstimulate the senses. *Prajnaparadha* (errors in judgment) includes factors like the misuse of ototoxic drugs, suppression of natural urges (*Vega Sandharana*), and complications arising from ear surgeries. Additionally, *Parinama* (aging and seasonal variations) contributes to infections and injuries that impair hearing.

The integration of ancient Ayurvedic wisdom with modern understanding highlights the importance of preserving sensory organs. Protecting the delicate internal structure of the *Srotra* (auditory system) and ensuring its proper functioning is essential for achieving *Swastya* (health and well-being). Ayurveda, as the science of life, prioritizes *Swastya Rakshanam* (maintenance of health) over *Vikara Prashamana* (treatment of disease), emphasizing the role of *Nidana Parivarjana* and therapeutic measures in safeguarding and revitalizing the senses.

Beyond *Nidana Parivarjana* (avoiding causative factors), adhering to Ayurvedic routines such as *Dinacharya* (daily regimen), *Ritucharya* (seasonal regimen), and *Swasthavritta* (guidelines for healthy living) plays a pivotal role in preventing hearing loss. Therapies like *Shiro Abhyanga* (head massage), *Karna Abhyanga* (ear massage), *Karna Poorana* (filling medicated oils in the ear), *Shirovasti* along with the intake of *Ghritha*

(medicated ghee) and *Rasayana* therapy (rejuvenation treatment), are vital for protecting and enhancing auditory health.

Genetic and congenital hearing loss can be significantly reduced by adhering to Ayurvedic principles that emphasize holistic care from conception to childbirth. Following the appropriate age for *Garbadharana* (conception) and incorporating preconception practices (*Garba Poorva Upakrama*), pregnancy care routines (*Garbinicharya*), and specific dietary and behavioural guidelines for the expectant mother (*Ahara and Achara of Garbini*) are essential for preventing congenital hearing issues. Postnatal care (*Balopacharaneeyam*) and avoiding factors harmful to the foetus (*Garbopadhakarabhava*) further safeguard auditory health.

Ayurvedic classics recommend specific dietary interventions to enhance reproductive health, such as *Sarpi*, *Ksheera*, *Salyodana* for men and *Tila* and *Mashaothara Ahara* for women. Proper nutrition and lifestyle choices (*Ahara* and *Vihara*) play a pivotal role in preventing *Badiryā* (hearing impairment). For instance, consuming *Vathala Ahara Vihara* (diet and lifestyle aggravating Vata) during pregnancy is strongly linked to hearing disorders in the child. Ayurveda underscores the vital connection between diet and health through the principle: "*Ahara Sambhavasthu Rogascha Ahara Sambhava*" (diseases and health both originate from diet). A nutrient-rich diet can be protective against hearing loss through mechanisms such as regulating oxidative stress, preserving cochlear blood flow, and reducing neuroinflammation and neurodegeneration of auditory nerve fibres and central auditory pathways.

Prolonged exposure to loud noise or specific frequency sounds, particularly in the workplace, can significantly impact an individual's mental well-being. Recent studies have highlighted the prevalence of depressive symptoms in couples where one or both partners experience hearing loss. In such cases, the use of *Rasayana*, particularly *Medhya Rasayana*, plays a crucial role in enhancing mental health and promoting emotional resilience.

Classical Ayurvedic texts describe the *asadhya lakshana* of *badirya*, particularly when it manifests in *bala*, *vridha*, or in cases with chronicity, making it challenging to cure. However, these texts also provide profound insights into prevention and protection strategies. Practices like *Garba Poorva Upachara* and *Garbinicharya* lay a strong foundation for auditory health. Additionally, following *Dinacharya* and *Ritucharya* can significantly reduce the risk of age-related hearing loss and help slow its progression. The injuries affecting the ear can also be brought into the broad spectrum of *nidana* of *karna roga – karna kanduayan*. The recurrent infections may be due to the aetiologies like *prathishaya*, indulging in *jala kreedā* and other environmental factors that leads to hearing loss. Hearing loss due to these factors can also be prevented by *nidana parivarchana*. The impact of ototoxic drugs to an extent may be related to the concept of *dooshi visha*. Hence incorporating the classical management of *dooshi visha*, helps us to overcome the adverse effect of ototoxicity.

By integrating these time-tested preventive measures, Ayurveda offers a holistic approach to preserving auditory function and enhancing overall well-being.

CONCLUSION

In the symphony of health, preserving auditory well-being through mindful dietary choices, ear care practices, and a holistic lifestyle, complemented by the vital knowledge of Ayurveda and its emphasis on *nidana parivarjana*, harmoniously bridges the gap between tradition and contemporary living, creating a balanced and scientifically orchestrated crescendo in the symphony of life.

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