A case discussion on presbyacusis

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INTRODUCTION

Hearing impairment is the most frequent sensory deficit in human populations, affecting more than 278 million people in the world. In India, 63 million people (6.3%) suffer from significant auditory loss.[1] The prevalence of presbyacusis rises with age, ranging from 25% to 40% of the population aged 65 years, 40-66% in patients older than 75 years, and more than 80% in patients older than 85 years.[2] Risk factors for presbyacusis include systemic diseases and poor habits that cause inner ear damage and lead to impaired hearing. Age, the male gender, diabetes mellitus, hypertension and hereditary hearing loss are all identified as risk factors. Poorly controlled hypertension or diabetes may pre-dispose to hearing impairment through the occurrence of chronic arteriosclerosis which in turn causes a reduction in the blood supply to the inner ear, as these are common chronic diseases among older adults. Hearing loss due to aging occurs from a combination of environmental and genetic factors. However, unfortunately, for various reasons the deafness has not drawn enough attention.

In the majority of presbyacusis cases, hearing loss develops as a consequence of degeneration of the inner ear, to be more precise the area of the inner ear containing microscopic blood vessels. There are additional changes to hair cells accompanied by loss of these cells and further hearing problems. Treatment for presbyacusis in the majority of cases includes appropriate hearing aids. This is only a partial solution of the problem. However, it has its own limitations and drawbacks. Untreated presbyacusis leads to social isolation, and depression, and may cause or worsen cognitive impairment and dementia.[4] In Ayurveda it can be taken as vaardhakyajanya baadhirya (senile deafness) one of the karnagata roga (ear disease) which is having the main symptom as reduced hearing.

Most hearing loss is either due to the disturbance of \textit{vata dosha} alone or vitiation of \textit{vata-kapha} together. Here, \textit{avasheyaya} (cold), \textit{jalakreeda} (swimming), and \textit{vardhakya} (senility) are the main etiological factors, which result in the vitiation of \textit{vata} and \textit{kapha} doshas. \textit{Vata} vitiation can result in damage to the auditory nerve and nerve
endings, which can lead to hearing loss and ringing in the ear. When kapha is vitiated, the result is obstruction of the sound pathway. Finally, disturbances of vata as well as kapha can affect the auditory nerve resulting in degeneration of the end organs of hearing or obstructions to the flow of nerve impulses, ending in presbyacusis.

The main treatment of karnagata rogas is Karnapurana. As the root cause for karnagata rogas lies in the shabdavaha srotas and the dosha involved is vatadosha, hence the treatment of choice is Karnapurana. Yogaratnakar states that "Puram katutailam hitam vataghnameva cha" hence Karnapurana was selected as treatment of choice to combat the root cause of baadbirya (deafness). This case showed good results.

**CASE REPORT**

A 75-year-old male presented with the complaints of reduced hearing in both ears associated with occasional occurrence of tinnitus, since 2 years. The patient is a known case of hypertension and is under medication.

**On examination**

On local examination of the ear [Table 1] the pinna, external auditory canal and tympanic membrane were normal. On tuning fork test, air conduction and bone conduction were reduced, which interprets the low +ve Rinne. On pure tone audiometric examination, the case was diagnosed as moderately severe sensori-neural hearing loss, with hearing threshold level in both ears between 61-80 dB hearing loss [Table 3]. The patient was unable to hear and understand even on shouting loudly. Routine hematological (hemoglobin, total count, differential count and erythrocyte sedimentation rate) investigations were done. The percentage of hemoglobin was reduced.

**Past history**

Patient had taken hearing aid 1 year back but it was of no use.

**Procedures administered to the patient**

The patient was administered with Karnapurana once daily for 7 consecutive days after sunset [Figure 1]. The treatment was repeated thereafter for three times, once every 15 days. The details of the procedures are described in Table 2.

**Pattbya (Do’s) -** Advised to take laghu (light), supachya (easy to digest) and ubhna (warm) ahaara, ghritapana (intake of ghee), wheat, rice, green gram, brinjal, drum stick, bitter gourd, bhrahmacharya (maintaining celibacy), alpa bhashana, etc., which pacifies the vatadosha.

**Apathya (Don’ts) -** Advised not to take head bath, drink cold water or other drinks, clean ears, exposure to cold wind, exercise, brushing the teeth with sticks, etc., which leads to aggravation of vata dosha.

**RESULTS**

The tinnitus was reduced by 1 month and subjective improvement in hearing was observed by 2 months. The patient was able to hear sounds and understand words spoken loudly after 4 months. After 6 months, he was able to hear and repeat words using raised voice at a distance of 1 m. The patient was advised to avoid exposure to loud noise. With a follow-up for a period of 1 year, the patient had a marked improvement in hearing [Table 3]. Meanwhile, he was prescribed oral medication of, Induvati one tablet twice daily for 3 months, Ashwagandhadi churna 1 tsp BD with milk and Karnapurana with taila once in a week for 6 months.

**DISCUSSION**

Loss of hearing is one of the important causes of
psychological trauma of the sensory losses and this is exactly how the deaf drowns in a sea of silence.[7] The degenerative changes that occur in the cells of organ of corti and nerve fibers result in a slow, progressive deafness which may be associated with tinnitus.[8]

Mode of action

Karnaabhyanga (Massage of the ear)
Here for karnaabhyanga murrbita tilatala (processed sesame seed oil) was used. Taila is having vyavyayi, vikaasi, suksma, vishada, guru and sara properties, ushna verrya and madhurya vipakaa. Hence mainly acts on vitiated vata dosha and pacifies it and normalizes its function. As Tila taila is having brihana (~nourishing)[8] the nourishment of shranendriya (ear) and to improve the hearing mechanism.

Bhashpa swedana (Sudation therapy)

Swedana karma by virtue of its properties like ushna, sara, snigdha, suksma, and shhira, etc., aids quicker absorption of oil into the ear and helps in vata shaman (pacification of vata dosha), improves the blood circulation and gives strength to the ears.[10] These actions in turn help to improve auditory function.

Karnapurana (Instillation of medicated oil into external auditory canal)
The ears are said to be the seat of vata dosha and are responsible for hearing mechanism as quoted in Asthanga Hridaya “Pakwasbaya katisakthi shrotasthi ……” “Buddhi briyayendriya chitta drir”.[11] The disease baadviriya occurs in ears is mainly due to vitiation of vata dosha. Karnapurana does the vatashamantha and maintains the normal hearing capacity, as quoted told by Acharya Charaka “na karnaroga vattottaha …..nochhai shrotiti na badiryan yanmitram karna tarpnaad”[12] Bilwatala was used for karnapurana. Bilwa exhibits ushna verrya and vatabarasa and kaphabara, action and helps restore vata dosha to normalcy. In one of the research works on leaf extract of Bilwa the results have shown the regeneration of damaged cells in pancreas.[13] Bhaavaprakash Nighantu mentions that Bilwa exhibits action on nerves and hence is considered as a nadi balya (gives strength to nerves) drug.[14] Thus, it may be inferred that Bilwa may be helping in nourishment of the ear cells as well as regeneration of damaged cells in deafness.

Oral medication

Ashwagandhadi churna contains Ashwagandha, Yasimitrda, Haridra, and Rasna, which are used to heal and regenerate damaged nerve cells, thus improving the nerve function. Indu vati mainly contains Swarna bhasma and Abhraka bhasma which are considered as immune modulatory medicines, used to reduce the deleterious effects of stress and to boost the immune status of the body. These compounds exert a rasayana effect. As the patient was elderly, we gave rasayana drugs to improve rasa and rakta dhatu. This might have contributed in the early improvement in sensori neural hearing loss and prevented further deterioration of this condition. A correction of abnormalities in the body tissues indirectly helps in improvement in hearing by reducing the dysfunction of the inner ear.

This study shows that there is significant improvement in hearing mechanism and there were no adverse effects seen throughout the treatment. The mode of treatment was found to be effective, safe and easy to implement. Thus, this paper aims at presenting a treatment protocol mentioned in the Ayurvedic texts that is effective in treating the known cause of the condition and improving the functional integrity of the inner ear and the central nervous system.

**REFERENCES**

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