



EFFICACY OF *BILWADI TAILA* *KARNAPURANA* AND *SARIVADI VATI* WITH AND WITHOUT *SHADABINDU TAILA NASYA* IN THE MANAGEMENT OF *BADHIRYA* (SENSORY NEURAL HEARING LOSS) - AN OPEN LABELLED RANDOMIZED COMPARATIVE CLINICAL TRIAL”

Dr. Sejal Kuchhadia¹, Dr. D. B. Vaghela²

¹13rd year M.S. Scholar, Shalakyta Tantra Department

ITRA, GAU, Jamnagar, Gujarat, India

sejal.kuchhadia31@gmail.com, 9978007470

²1/C HOD & Associate Professor, Shalakyta Tantra Department,

ITRA, GAU, Jamnagar, Gujarat, India

drvaghela@rediffmail.com

ABSTRACT: Hearing loss or hearing impairment is a partial or entire inability to hear. It can result in hearing conversational speech or loud sounds with difficulty. It can be unilateral or bilateral. As *Badhirya* is impaired hearing, it can be compared with Deafness (Hearing Loss). Defect at any level from sound transduction to interpretation can cause hearing loss. According to modern science, there are mainly three types of deafness. 1) Conductive Deafness 2) Sensory Neural Deafness and 3) Mixed Deafness. *Vata Dosha Pradhana Badhirya* can be corresponded with Sensory Neural Hearing Loss. Here in present study *Bilwadi Taila Karnapurana* is used and it comes under the external *Snehana*. Generally medicated oil is used for *Karnapurana* as *Taila* is having virtue of *Vata Shamana* but do not aggravate *Kapha*. In addition, medicine is used as Luke warm, so it has beneficial effect not only on *Vata* but also removes *Avarana* of *Kapha*. *Apakva Bilwa Phala* exhibits *Ushna Virya* and *Vata-Kaphahara* property. *Bhavaprakasha Nighantu* mentions that *Bilwa* exhibits action on nerves and hence is considered as *Nadi Balya* (give strength to nerves). Thus, it is inferred that *Bilwa* is helping in nourishment of the ear cells as well as regeneration of damaged cells in deafness. The drugs used in *Shadabindu Taila* and *Sarivadi Vati* are *Bruhaniya* in nature. It also helps in stabilizing the *Prakupita Vata-Kapha Dosha* by its virtue of action and in preventing

retrogressive changes in *Vruddhavastha*. Hence the treatment is planned by the taking the *Bilwadi Taila Karnapurana*, *Shadabindu Taila Nasya* and *Sarivadi Vati* orally as the drug of choice. **Materials and Methods:** total 30 patients were divided into two groups by open labelled computerized randomized comparative clinical trial with group A- *Bilwadi Taila Karnapurana*, *Sarivadi Vati* orally and *Shadabindu Taila Nasya* and with Group B *Bilwadi Taila Karnapurana* and *Sarivadi Vati* orally. **Result and Discussion:** In Group A, 33.33% patients got cured, 46.66% patients got marked improvement, 13.33% patients got moderate improvement, none of the patients got mild improvement and 6.66% patient remained unchanged and in Group B, 13.33% of patients got cured, 6.66% of patients got marked improvement, 20% got mild improvement, 33.33% patients got moderate improvement and 26.66% patients remained unchanged.

Keywords: *Badhirya*, *Bilwadi Taila*, *Sarivadi Vati*, *Shadabindu Taila*, SNHL.

INTRODUCTION: *Acharya Sushruta* has described twenty eight types of *Karnaroga* and *Badhirya* is one among them. *Acharya Vagbhatta* has mentioned twenty five types of *Karnaroga*. According to *Acharya Sushruta*, vitiated *Vata Dosha* along with *Kapha* (resides in *Shabdanuvaha Sira*) by obstructing the *Shabda Vaha Srotasa* or *Shabda Vaha Sira* will cause the disease *Badhirya*.ⁱ According to *Madhavakara* and *Videha*, the vitiated *Vata Dosha* as well as vitiated *Vata-Kapha Dosha* causes *Badhirya*. According to *Dalhana* not only *Vata Dosha* but also *Rakta*, *Pitta* and *Kapha Dosha* also reside in *Shabdanuvaha Sira* and leads to *Badhirya*.

Low and middle-income countries have great number of people with disabling hearing loss. Also because of improper way of living, irregular food habits, mental stress, profound noise, climatic changes, the number of patients suffering from *Badhirya* (Sensory Neural Hearing Loss) is increased. According to WHO estimates on magnitude of Deafness of year 2021, states that 466 million persons of the world are suffering from disabling hearing loss (Over 5 % of the world's population). Among them, 432 million are adult and 34 million are children. It is estimated that by 2050, over 700 million people or one in every 10 people will have disabling hearing loss. Approximately one third of people over 65 years of age are affected by disabling hearing loss.ⁱⁱ

Badhirya (Sensory Neural Hearing Loss) hampers routine life of a human. Because of which a person faces decrease in job opportunities, social withdrawal due to reduced access to services and difficulties in communicating with others. Modern science uses Hearing Aids which can get clogged with earwax and moisture. It also produces occlusion effect. Cochlear implant surgery also has its own drawbacks like production of ringing sound, blood or fluid collection, infection and numbness in ear. Because of such type of drawbacks in modern science, we have chosen Ayurveda as mode of treatment which is easily conductible and effective.

❖ AIMS AND OBJECTIVE:

To assess the efficacy of *Bilwadi Taila Karnapurana* and *Sarivadi Vati* orally in *Badhirya* (Sensory Neural Hearing Loss) with and without *Shadabindu Taila Nasya*.

❖ MATERIALS AND METHODS :

Institutional Ethical Committee (IEC) approval Clearance was taken prior to initiation of the clinical trial vide its letter no. PGT/7/-A/Ethics/2020-21/625 Dated- 14/07/2020. No any adverse drug reaction has been recorded during the course of the trial. Study was registered in Clinical Trial Registry of India no. CTRI/2020/12/029899, dated: 18-12-2020. Patient information sheet was prepared and the informed consent was taken before starting the treatment. Total 30 Patients were selected from the O.P.D. of Shalakyta Tantra and also referred from OPD of other Departments, I.P.G.T. & R.A. Hospital, G.A.U., Jamnagar on the basis of signs and symptoms of the disease *Badhirya* (SNHL). Selected drugs were prepared in the pharmacy of G.A.U., Jamnagar. These 30 patients were randomly divided into 2 groups. The patients were given treatment for a period of 45 days. After completion of the treatment, the patients were followed for one month at the interval of 15 days.

❖ **GROUPING:** All the patients were divided into two groups by open labelled computerized randomized comparative clinical trial.

Group A:

- 1) *Bilwadi Taila Karnapurana* in Luke warm state at evening.
- 2) *Sarivadi Vati* orally with Luke warm water after meal.
- 3) *Shadabindu Taila Nasya* in Luke warm state at morning.

Group B:

- 1) *Bilwadi Taila Karnapurana* in Luke warm state at evening.
- 2) *Sarivadi Vati* orally with Luke warm water after meal.

❖ CRITERIA FOR SELECTION:**DIAGNOSTIC CRITERIA**

Diagnosis of the *Badhirya* (SNHL) was done with the help of Tuning fork test and Audiometry.

Associated Symptoms of *Badhirya* (SNHL) are:

- Itching in ear.
- Pain in Ear.
- Ear Discharge.

- Aural blockage.
- Tinnitus.

INCLUSION CRITERIA

- Patients in the age group 18-60 years irrespective of sex, caste, religion etc.
- Degree of hearing loss (Between 25 dB to 90 dB Sensory Neural Hearing Loss)

EXCLUSION CRITERIA

- Age :- below 18 year and above 60 year
- Degree of hearing loss greater than 90 dB
- Conductive deafness
- Mixed hearing loss
- Middle ear pathology
- Inner ear pathology like Acoustic Neuroma, Meniere's disease.
- Genetic Sensory Neural Hearing Loss
- Syphilitic Sensory Neural Hearing Loss
- Psychogenic hearing loss
- Systemic diseases: e.g. Diabetes, Hypothyroidism, Renal disorders, Autoimmune disorders, Multiple sclerosis.
- Malignancy.
- Patient who needs surgical intervention

❖ **INVESTIGATION:**

The following laboratory investigations were carried out before the treatment to assess the condition and to rule out any other systemic disease:

- Hematological Examinations (Hb%, TC, DLC, ESR).
- Urine Examination: Physical, Chemical and Microscopic
- Biochemical: RBS

❖ **EXAMINATION:**

- Otoscopy.
- Tuning fork test.
- Audiometry.

❖ **CRITERIA FOR ASSESMENT:**

The efficacy of the therapy was assessed on the basis of subjective and objective criteria.

- **Subjective:** Improvement in signs and symptoms obtained in the patients were considered for assessment. Scoring pattern was adopted for assessment of total effect of therapy on signs and symptoms.

➤ **KARNASHOOLA:**

Sign & Symptoms	Score
No pain	0
Mild pain	1
Moderate pain	2
Severe pain	3

➤ **KARNASRAVA:**

Sign & Symptoms	Score
No discharge	0
Mild discharge	1
Moderate discharge	2
Severe discharge	3

➤ **KARNANADA:**

Sign & Symptoms	Score
No noise in the ear	0
Occasionally negligible noise in the ear	1
Noise affecting routine work and sleep	2
Noise affecting at resting hours	3

➤ **KARNAGUTHA:**

Sign & Symptoms	Score
No wax	0
Mild wax	1
Moderate wax	2
Severe wax	3

➤ **KARNAKANDU:**

Sign & Symptoms	Score
No itching	0
Mild itching	1
Moderate itching	2
Severe itching	3

❖ **OBJECTIVE**

1. Tuning Fork Test
2. Audiometry – Pure Tone Audiometry

❖ **BADHIRYA:**

Sign & Symptoms	Score
No impaired hearing [0-25dB]	0
26-40 dB loss	1
41-60 dB loss	2
60 dB and above loss	3

❖ **OVER ALL EFFECT OF THERAPY:**

The effect of the therapy was assessed as below:

Cured	≥75%-<100% relief in signs and symptoms.
Marked Relief	≥50%-<75% relief in signs and symptoms.
Moderate Relief	≥25%-<50% relief in signs and symptoms.
Mild Relief	<25% relief in signs and symptoms.
Unchanged	0% relief in signs and symptoms.

STATISTICAL ANALYSIS:

The data obtained in clinical study were subjected to statistical analysis by evaluating the significance of the interventions using paired and unpaired t tests. After obtaining the P value, it was observed as insignificant $P > 0.05$, significant $P < 0.05$, highly significant was $P < 0.01$.

OBSERVATION: According to the data obtained,

- Maximum numbers of the patients i.e. 43.3% were from the age group of 51-60 yr
- Majority of the patients were male i.e. 53.3%
- Maximum numbers of patients i.e. 96.6% were Hindu.
- Maximum numbers of patients i.e. 30% were having graduate education.
- Maximum number of the patients i.e. 46.66 % were doing business occupation.
- Maximum numbers of patients i.e. 76.66% were married.
- Maximum numbers of patients i.e. 40% were from upper middle class.
- Maximum number of patients i.e. 93.33% belonged to urban area.
- Maximum number of patients i.e. 63.33% were from the noisy surrounding.
- No any patient was having positive family history.
- No any patients were having past history of any drug, convulsion and other.
- Maximum patient i.e. 90 % was having history of *Sheetambu Sevana Nidana*.
- Maximum patient i.e. 56.66% was having moderate appetite.
- Majority of the patients i.e. 70% were having normal sleep.

- Maximum 66.66% of the patients were having normal bowel habit.
- Maximum patients i.e. 96.88% were having normal micturation.
- Maximum numbers of patients i.e. 70% were having normal emotional makeup
- Maximum patients i.e. 86.66% were vegetarian.
- Maximum 80% patients were having *Laghu Guna* dominant in diet.
- Maximum 80% patients were having dominance towards *Katu Rasa, Madhura Rasa*.
- Maximum 20% patients were addicted to smoking.
- Majority 76.66% of the patients were working in noisy area.
- Majority 50% patient were having *Vata-Kapha Prakriti*.
- Maximum 96.66% patients were having *Rajasika Manasa Prakriti*.
- Maximum 93.33% patients were having *Madhyama Sara*.
- Maximum 96.66% patients were having *Madhyama Samhanana*.
- Maximum 93.33% patients were having *Madhyama Satmya*.
- Maximum 90% patients were having *Madhyama Satva*.
- Majority numbers of patients i.e. 70% were having *Madyama Ahara Shakti*.
- Maximum *Madhyama Jarana Shakti* was found in 66.66% of the patients.
- Maximum patient 56.66% were having *Vishamaagni*.
- Maximum numbers of patients were having *Avara Vyayama Shakti* 56.66%.
- Maximum patients i.e. 50% belong to *Vridhavastha* and *Yuvavastha*.

EFFECT ON CHIEF COMPLAINT IN 15 PATIENTS OF *BADHIRYA*(SNHL) IN GROUP-A

Chief Complaint	Mean Score		Mean Diff.	% of Relief	SD	SE	't'	'P'	Sig.
	B.T.	A.T.							
<i>Badhirya</i>	2.267	1.267	1.000	44.11%	0.756	0.195	5.123	<0.001	HS

EFFECT ON ASSOCIATED COMPLAINT IN 15 PATIENTS OF *BADHIRYA*(SNHL) IN GROUP-A

Associated Complaint	N	Mean Sore			% of Relief	S. D.	S.E.	't'	'P'	Sig.
		B.T.	A. T	Mean Diff.						
<i>Karnashola</i>	7	0.800	0.133	0.667	83.33%	0.816	0.211	3.162	<0.01	S
<i>Karnasrava</i>	0	-	-	-	-	-	-	-	-	-
<i>Karnanada</i>	1	0.133	0.00	0.133	100%	0.516	0.133	1.000	>0.05	IS

<i>Karnakan du</i>	2	0.133	0.00	0.133	100%	0.352	0.090 ₉	1.468	>0.05	IS
<i>Karnagutha</i>	0	-	-	-	-	-	-	-	-	-

EFFECT OF THERAPY ON AUDIOMETRIC RESULTS IN GROUP A

Audiometry of Ear	N	Mean Score		Mean Diff.	% of Relief	S.D.	S.E.	't'	'P'	Sig.
		BT	AT							
Right Ear	15	35.349	32.983	2.366	7.90%	2.792	0.547	3.579	<0.05	S
Left Ear	15	36.129	33.245	2.884	8.50%	3.386	0.953	3.943	<0.05	S

Group B – *Karnapurana* with *Bilwadi Taila* along with *Sarivadi Vati* for 1 month.

EFFECT ON CHIEF COMPLAINT IN 15 PATIENTS OF *BADHIRYA*(SNHL) IN GROUP-B

Chief complaint	Mean Score		Mean Diff.	% of Relief	SD	SE	't'	'P'	Sig.
	B.T.	A.T.							
<i>Badhirya</i>	2.600	2.267	0.333	12.82%	0.488	0.126	2.646	<0.05	S

EFFECT ON ASSOCIATED COMPLAINT IN 15 PATIENTS OF *BADHIRYA*(SNHL) IN GROUP B

Associated Complaint	N	Mean Sore			% of Relief	S.D.	S.E.	't'	'P'	Sig.
		B.T.	A.T	Mean Diff.						
<i>Karnashoola</i>	0	-	-	-	-	-	-	-	-	-
<i>Karnasrava</i>	0	-	-	-	-	-	-	-	-	-
<i>Karnanada</i>	4	0.467	0.0667	0.400	85.71%	0.737	0.190	2.103	>0.05	IS
<i>Karnakandu</i>	2	0.333	0.200	0.133	40%	0.352	0.090 ₉	1.468	>0.05	IS
<i>Karnagutha</i>	0	-	-	-	-	-	-	-	-	-

EFFECT OF THERAPY ON AUDIOMETRIC RESULTS IN GROUP B

Audiometry of Ear	N	Mean Score		Mean Diff.	% of Relief	S.D.	S.E.	't'	'P'	Sig.
		BT	AT							
Right Ear	15	34.349	33.983	0.366	1.90%	0.492	0.147	2.579	>0.05	IS
Left Ear	15	35.683	34.246	1.437	3.96%	1.532	0.422	3.583	<0.05	S

COMPARATIVE EFFECT OF THERAPY ON CHIEF COMPLAINT AND ASSOCIATED COMPLAINT OF *BADHIRYA* (SNHL)

Complaints	Group	N	Mean Diff.	S.D.	S.E.	't'	'P'	Sig.
<i>Badhirya</i>	A	15	1.000	0.756	0.195	2.870	<0.05	S
	B	15	0.333	0.488	0.126			
<i>Karnashoola</i>	A	07	0.667	0.816	0.211	3.162	<0.01	S
	B	00	-	-	-			
<i>Karnasrava</i>	A	00	-	-	-	-	-	-
	B	00	-	-	-			
<i>Karnanada</i>	A	01	0.133	0.352	0.0909	2.103	<0.05	S
	B	04	0.400	0.737	0.190			
<i>Karnakandu</i>	A	02	0.133	0.352	0.0909	0.592	>0.05	IS
	B	02	0.133	0.352	0.0909			
<i>Karnagutha</i>	A	00	-	-	-	-	-	-
	B	00	-	-	-			

COMPARATIVE EFFECT ON AUDIOMETRIC RESULTS:

Audiometry of Ear	Group	N	Mean Difference	S.D.	S.E.	't'	'P'	Sig.
Right Ear	A	15	2.366	2.792	0.547	1.938	>0.05	IS
	B	15	0.366	0.492	0.147			

Left Ear	A	15	2.884	3.386	0.953	3.021	<0.05	S
	B	15	1.437	1.532	0.422			

OVERALL EFFECT OF THERAPY:

Overall effect	Group-A		Group-B	
	No. of patients	%	No. of patients	%
Cured (≥75%–<100%)	05	33.33	02	13.33
Marked Improvement (≥50%–<75%)	07	46.66	01	6.66
Moderate Improvement (≥25%–<50%)	02	13.33	05	33.33
Mild Improvement (<25%)	00	00	03	20
Unchanged (0%)	01	6.66	04	26.66
Total	15	100	15	100

DISCUSSION:

- **Discussion on effect of therapies on chief complaint-*Badhirya*:**

In Group A, 44.11% relief in *Badhirya* was found, while in Group B 12.82% relief was found. Group A shows statically highly significant ($P=<0.001$) result while Group B shows statistically significant result ($P=<0.05$).

This shows that from both the groups, Group A is comparatively more effective than Group B.

- **Discussion on effect of therapies on associated symptom:**

1. In Group A, 83.33% relief was found in *Karnashoola* which was statistically significant ($P=<0.01$) and no complain of *Karnashoola* was found in Group-B.
2. In Group A, 100% relief was found in *Karnanada* which was statistically insignificant ($P=>0.05$) (Due to small sample size, $N=1$) while in Group B, 85.71% relief was found which was statistically insignificant ($P=>0.05$) (Due to small sample size, $N=4$).
3. In Group A, 100% relief was found in *Karnakandu* which was statistically insignificant ($P=>0.05$) (Due to small sample size, $N=2$) while in Group B, 40% relief was found which was statistically insignificant ($P=>0.05$) (Due to small sample size, $N=2$).

In this study Group A is comparatively more effective than Group B in percentage wise.

▪ **Discussion on effect of therapy on Audiometric results:**

1. In Group A, 7.90% relief was found in right ear which was statistically significant ($P < 0.05$) and 8.50% relief was found in left ear which was statistically significant ($P < 0.05$).
2. In Group B, 1.90% relief was found in right ear which was statistically insignificant ($P > 0.05$) and in left ear 3.96% improvement was found which was statistically significant ($P < 0.05$).

▪ **Comparative effect of therapy on chief and associated symptoms:**

The comparative effect of Group A with Group B was statistically analysed by using unpaired student 't' test. Statistically significant result was found in between both groups in *Badhirya* ($P < 0.05$). Statistically significant result was found in *Karnashoola* ($P < 0.01$) in Group A while no complain was found in Group B. Statistically significant difference was found in between both groups in *Karnanada* ($P < 0.05$). Statistically insignificant difference was found in between both groups in *Karnakandu* ($P > 0.05$).

▪ **Comparative effect of therapy on audiometric results:**

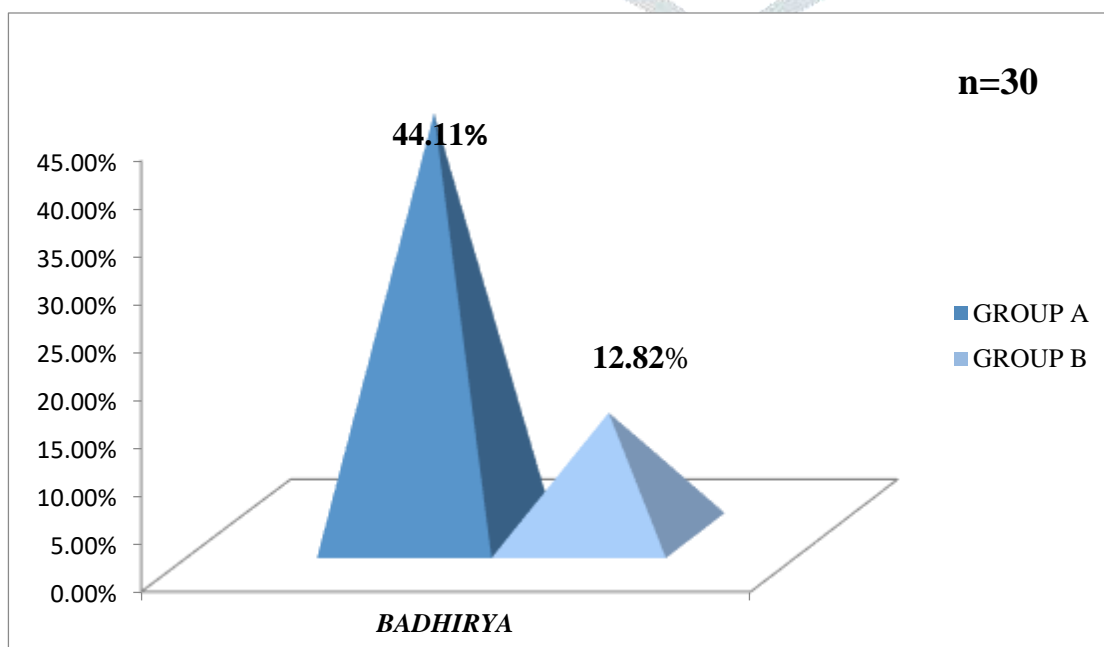
The comparison on audiometric result between Group A and Group B was statistically analysed by using unpaired student 't' test. Statistically insignificant difference was seen in between two groups in right ear. Statistically significant difference was seen in between two groups in left ear.

❖ **OVERALL EFFECT OF THERAPY:**

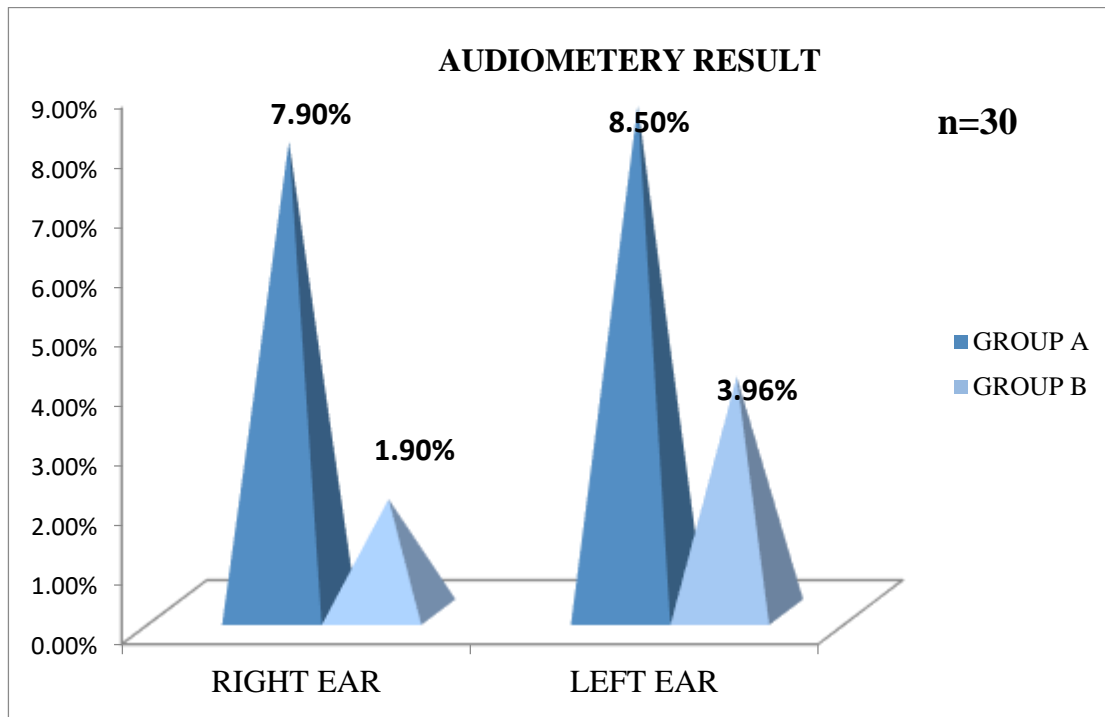
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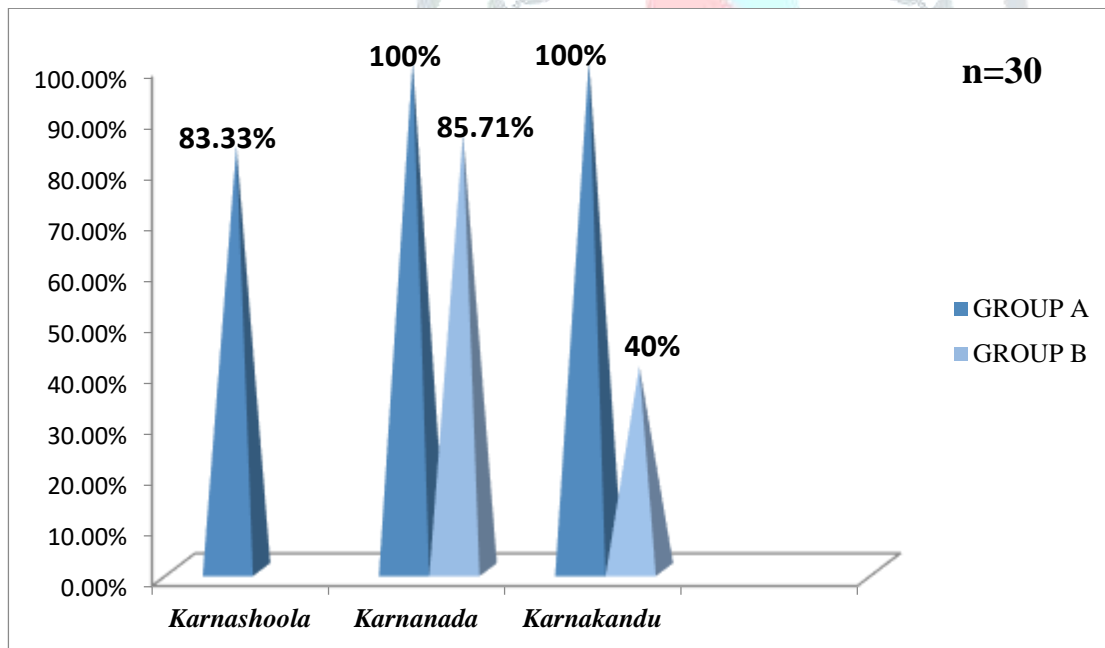
GRAPH SHOWING EFFECT OF THERAPY ON CHIEF COMPLAINT:-

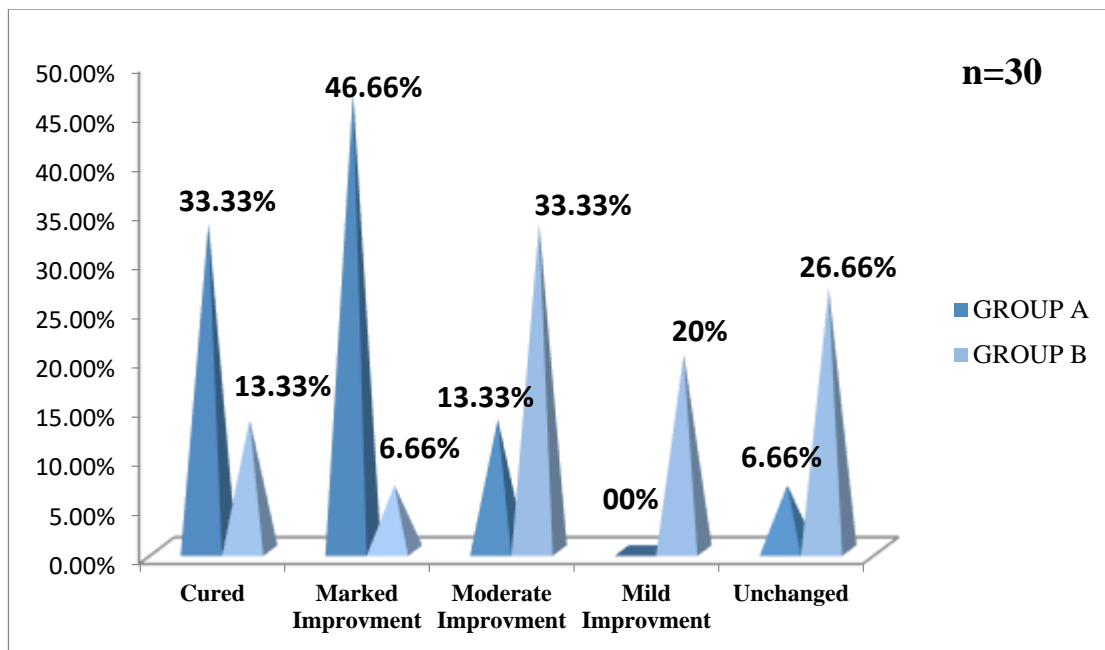


GRAPH SHOWING EFFECT OF THERAPY ON OBJECTIVE CRITERIA:-



GRAPH SHOWING EFFECT OF THERAPY ON ASSOCIATED COMPLAINT:-



GRAPH SHOWING OVERALL EFFECT OF THERAPY:-**❖ PROBABLE MODE OF ACTION OF *BILWADI TAILA KARNAPURANA*:**

- According to Ayurveda, the ears are a physical place in the body where *Vata Dosha* resides. The antidote for this is *Karnapurana*. *Snehana* and *Swedana* done in *Purvakarma* helps in rise of blood circulation and increase the permeability of capillaries. *Swedana Karma* also by virtue of its properties like *Ushna*, *Sara*, *Sukshma* aids quicker absorption of oil into the ear and helps in *Vata Dosha Shamana*. *Karnapurana* calms *Vata Dosha* by bringing in opposite qualities-warm, moist, stable and smooth. *Karnapurana* has *Bruhaniya* property, hence providing strength and also stimulates the nerves.
- ***Bilwa***- *Bilwa* contains furocoumarins, tannin, rutin, xanthotoxal, marmelosin.ⁱⁱⁱ It improves microcirculation of any sense organ. *Bilwa Taila* absorption occur through epithelial tissue of external ear canal and tympanic membrane that can maintain normal function of hearing and equilibrium. It spread into the deeper tissues through (*Rasa & Rakta*) *Shabdavaha Sira*.^{iv}
- ***Tila Taila***- It has *Madhura rasa* and *Madhura Vipaka*. It is ‘*Vataghnesha Uttam*’ and ‘*Na Sleshmabhi Vardhana*’ property.^v It consist of vitamin E, vitamin K and minerals like magnesium, calcium, iron, phosphorus, potassium and sodium. These elements helps to gain the strength and provide nutrition to nerves of ear.
- ***Gaumutra***- It is *Agnideepana*. It removes the vitiated *Kapha* and *Vata Dosha*.
- ***Ajadugha***- It eliminates all the three vitiated *Doshas-Vata*, *Pitta* and *Kapha*. It heals and rejuvenate the body, has bactericidal effects. It promotes the restoration of natural collagen and the water-salt balance and also increase cell metabolism.^{vi}

❖ **PROBABLE MODE OF ACTION OF SHADABINDU TAILA:**

- *Shadabindu Taila* is a Polyherbomineral formulation. It consist of *Sneha Dravya*, *Drava Draya* and *Kalka Dravya*.
- It nourishes and stimulates the sensory nerves. It is anti-inflammatory and anti-microbial.
- Its *Tikta-Katu Rasa* increases *Kaphadhatvagni*, *Ushna-Tikshna Guna* decreases the excessive *Kapha* production, *Madhura Vipaka* and *Snighda Guna* stabilizes the *Vata-Pitta Dosha* and gives *Balya* to nasal mucosa.
- *Tila Taila* is *Vyavayi*, *Vikaasi*, *Sukshma*, *Vishada*, *Guru* and *Sara*, possess *Ushna Virya* and *Madhura Vipaka*. It acts on *Vata Dosha* and pacifies it. It also relieves *Vimarga-Gamana*.^{vii}

PROBABLE MODE OF ACTION OF SARIVADI VATI:

- *Sarivadi Vati* is used to manage hearing problems, tinnitus, ear infection.
- Antimicrobial action of the *Sarivadi Vati* due to ingredients like *Kushta*, *Guduchi* etc. fights against the bacterial infection of ear .
- *Sarivadi Vati* removes the *Avarodha* of *Srotasa* and do *Vatanulomana* along with *Kapha Shamana*. Majority of drugs possesses *Tridoshashamaka* action.
- It has *Rasa Ausadhi* which provide *Balya* to nerves and *Triphala* like *Dravya* which is antioxidant by action. It is *Rasa* and *Rakta Dhatu Vardhaka*.
- The main *Karma* of *Sarivadi Vati* is *Rasayana*. It helps to remove *Indriya Daurbalya*. It is the best *Rasayana Dravya* for *Shabdavaha Srotasa* and *Shravanendriya Vikara*.

❖ **CONCLUSION:**

It can be concluded that hearing loss of modern science comes under the caption of *Badhira* in Ayurveda. Considering the limitations of treatment in cases of sensory neural hearing loss, above mentioned Ayurveda treatment modalities of *Badhira* may prove beneficial. It is observed that, When there is disturbance in *Vata Dosha*, sound is not conveyed from ear to brain. In some cases, vitiated *Kapha* obstructs the *Vata* pathway because of which *Vata* fails to conduct the sound waves. Therefore, the hearing ability of one goes on deteriorating gradually and can be lost completely.

- Group A shows statistically highly significant result and Group B shows statistically significant result in the cardinal feature of *Badhira*. Also in percentage wise, group A is comparatively more effective than Group B. However, significant result was found in between both groups in *Badhira*.
- Group A shows statistically significant result on associated complain *Karnashoola* while insignificant result on associated complain *Karnanada* and *Karnakandu* and Group B shows insignificant result on associated complain *Karnanada* and *Karnakandu* while no complain was found of *Karnashoola* in Group B. But percentage wise, Group A is comparatively more effective than Group B. However, significant difference

was found in between both the groups in *Karnanada* and insignificant difference was found in between both the groups in *Karnakandu*.

- In audiometric findings Group A shows significant result in right ear and significant result in left ear. Group B shows insignificant result in right ear and significant result in left ear. However, insignificant difference was seen in between two groups in right ear and significant difference was seen in between two groups in left ear.

After observing throughout the study we can conclude that group A shows statistically significant result than that of group B.

Conflicts of interest: there are no conflicts of interest.

REFERENCE

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