ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 06, Issue, 01, pp. 6602-6604, January, 2016

International Journal of
DEVELOPMENT RESEARCH

Full Length Research Article

EVALUATION OF THE EFFICACY OF BILVATAILA KARNAPURANA AND KARNABASTI IN THE MANAGEMENT OF VARDHAKYAJANYA BADHIRYA (PRESBYCUSIS)

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ARTICLE INFO

Article History:

Received 26th October, 2015
Received in revised form
14th November, 2015
Accepted 28th December, 2015
Published online 31st January, 2016

Key Words:

Bilva taila, Karnabasti, Karnapuran, Vardhakyajanya Badhirya, Presbycusis, Shalakya-tantra, Audiometry, Vertigo, Deafness, Tinnitus.

ABSTRACT

With the aim to evaluate the efficacy of *Bilva taila Karnabasti* and *Bilva Taila Karnapuran* in the management of Vardhakyajanya Badhirya (Presbycusis), a Single blind randomized clinical study was done. For the clinical study of Vardhakyajanya Badhirya (Presbycusis), 30 subjects was selected and studied. Subject's fulfilling the criteria of diagnosis was studied irrespective of their religion, caste, sex and socio-economic status from shalakya-tantra department of the institute after thorough scrutiny and proper consent in his/her language. The Subject's having age between 55-75 yrs was selected for the clinical Study. Detail history of the patient were elicited, pathological investigation including Hb, TLC, DLC, RBS and required radiological investigation were done in a diagnostic Centre. The examination of the Ear Audiometry , Vestibular examination , Otoscopic examination is also carried out with the help of modern viewing techniques. After observation and analytical study with the help of Wilcoxon sign rank test and Man-whiteny test it was concluded that inVardhakyajanya Badhirya (Presbycusis) treatment with *Bilva taila Karnabasti* shows more effective Result in relieving sign and symptoms than *Bilva Taila Karnapuran.*

INTRODUCTION

Vardhakyajanya badhirya (presbycusis) is one among the many socio-medical problems, which is considered as a disability in older people (Alxender Rosinkin). Vardhakyajanya badhirya (presbyacusis) is being described as hearing impairment in elderly people (Venimadhavshastri Joshi, 1986). Hearing impairment among elderly people is a major issue and a person with hearing loss may be unable to hear to respond, this scenario can make them feel frustrated, lonely and depressed (Bhargava, 2000). Presbycusisis the third most common chronic condition after arthritis and hypertension among elders. According to WHO nearly 1.2 billion people will be over the age of 60yr consequently the prevalence of age related auditory and vestibular dysfunction will increase by 2025 (Simson Hall, 1981). Hearing loss can be improved by using the hearing aids, but it may not be a perfect solution for all (Dhingra, 1998). In classics of Ayurveda this ailment has been described as *karnabaadhirya* under the heading of ear diseases (Yadavaji Trikamji Acharya, 1994). *Karnapurana* (Instillation of medicated Taila into the external auditory canal) is one of the major treatments for ear diseases explained in classics (Kaviraj Ambikadatta Shastri, 1970).

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Clinical observation has shown its effectiveness in the management of presbyacusis (Yadavjitri kamjiaachrya, 1940).

Objectives

- To study efficacy of *Bilva Taila Karnapurana* in Vardhakyajanya Badhirya (Presbycusis).
- To study efficacy of *Bilva Taila Karnabasti* in Vardhakyajanya Badhirya (Presbycusis).
- Comparing the efficacy of *Bilva Taila Karnapurana* and *Bilva Taila Karnabasti* in Vardhakyajanya Badhirya (Presbycusis).

Hypothesis

H_0-*Bilva Taila karnapurana* and *Karnabasti* do not have any effect on *Vardhakyajanya Badhirya* (Presbycusis).
H_1-As ageing and ear audibility are under the influence of vata, the said *Bilva Taila karnapurana* and *Karnabasti* do have effect on *Vardhakyajanya Badhirya* (Presbycusis)

MATERIAL AND METHODS

Study design

Simple random sampling technique comparative clinical study (Mahajan, 1993). Patient will be selected from the OPD of department of ShalakyaTantra, after thorough scrutiny and proper consent.

Composition of trial drug$_{10}$

Sr.No.	Sanskrit Name	Botanical Name	Family	Part Used	Proportion
1	*Bilva*	*Aeglemarmelos*	*Rutaceae*	fruit	01
2	*Tila*	*Seasamumindicum*	*Pedaliaceae*	seed	04

Preposition-

DRAVYA	BILVA	TILA
RASA	Kasaya,Tikta,Madhur	Madhur,Tikta,Kasaya,Katu
GUNA	Tikshna,Ruksha,Laghu	Guru,Snigdha,Sushma,Vyavai
VIRYA	Ushna	Ushna
VIPAK	Katu	Madhur
KARMA	Vatahar,kaphahara,Visaghna	Snehan,Balya,Vataghna,Rasayan,Vajikar

Sample size

Group A= N_1= 15
Group B=N_2= 15
Total=30

Grouping: 2 Groups

Group A: Treatment with Bilva Taila karnabasti.
Group B: Treatment with Bilva Taila karnapurana.

Posology

Group A – karnabasti *by BilvaTaila* – QS (1''above the ear pinna oil level taken)
Group B – karnapurana *by BilvaTaila* –QS(1-2 ml)

Treatment duration

Group A – karnabasti *by BilvaTaila* – 14 days
Group B – karnapurana *by BilvaTaila* **–** 14 days

Intervention

Grouping	Group A	Group B
Sample size	15	15
Intervention	*BilvaTaila* karnabasti *(For 30 minute)*	*BilvaTaila* karnapurana *(For 30 minute)*
Treatment duration	*14 days*	*14 days*
Follow up	*After 7 days*	*After 7 days*

Criteria for assessment

1) Criteria of inclusion:

- Audiometric findings.
- Age group between 55 to 75 years of either gender.
- Hearing loss between 26 – 90db.

2) Criteria of exclusion:

- Subjects suffering from middle ear infectious diseases.
- Patient having profound hearing loss i.e. hearing loss above 90db.
- Patient having perforation to Tympanic Membrane.

Criteria for evaluation

Assessment will be done on the basis of improvement in Audiological findings of the patientand from Subjective and Objective parameters of data.

Subjective Criteria

Peripheral Vertigo – Alexander's Law

Grades	Vertigo
1st Degree	Present only when subject looks in the direction of fast phase
2nd Degree	Present when subject looks straight ahead
3rd Degree	Present even when subject looks in the direction of slow phase

Objective criteria

1) **Deafness-** Goodman's rule of hearing loss for deafness.

- 0-25 db- Normal hearing
- 26-40db – mild hearing loss
- 41-55db – moderate hearing loss
- 56-70db – moderate to severe hearing loss
- 71-90db–severe hearing loss
- > 90 db – profound hearing loss

2) **Tinnitus (Ringing in ear)** - Obtain by hearing thresholds, loudness , pitch , and masking curves of tinnitus, computer programs enable all of these measures to be obtained in a single session

Investigation

- CBC
- ESR
- RBS

Diagnosis

- Rinne's test
- Weber's test
- ABC test
- Audiometry
- BERA

Radiological

- X-Ray Mastoid Bone –Schuller's View.

RESULTS AND DISCUSSION

In the Group A the Mean Vertigo was observe to be 1.633 before treatment that reduced to 1.567 after treatment (p value >0.05), the Mean Tinnitus was observe to be 2.5 before treatment that reduced to 0.6667 after treatment (p value <0.05), the Mean Deafness was observe to be 2.467 before

treatment that reduced to 0.7000 after treatment (p value <0.05). In the Group B the Mean Vertigo was observe to be 1.500 before treatment that reduced to 1.400 after treatment (p value >0.05), the Mean Tinnitus was observe to be 2.333 before treatment that reduced to 1.367 after treatment (p value <0.05), the Mean Deafness was observe to be 2.300 before treatment that reduced to 1.067 after treatment (p value <0.05).

To examine either the groups differs from each other significantly or not, further data are treated by Mann whiteny U score test. For Vertigo the mean difference in value in group A was 0.06667 while that in Group B was 0.1000(p value >0.05). For Tinnitus the mean difference in value in group A was 1.833 while that in Group B was 0.9667(p value <0.05). For Deafness the mean difference in value in group A was 1.767 while that in Group B was 1.233(p value <0.05).

Conclusion

In this series, 30 patients of Presbycusis were studied, no any difference in sex ratio is found i.e. both male to female ratio is equal, 73.33% patients belonging to Hindu religion, maximum number of patient are educated up to mid school and high school i.e. 26.66% each. 80% of patients are from lower socio-economic level, 50% patient were suffering from Presbycusis since more than 5 yrs, 71.66% patient were having *kaphavatajprakriti*, 38.33% patient were having *mandagni*, 78.33% patients were taking sheet *gunatmaka Ahar* while 71.66% patient were taking *rukshagunatmak Ahar*, 48.33% patient were taking dominant *katurasatmaka Ahar* and 83.33% patients were taking mixed type of diet. In this study 100% patients of both groups were having *vata dosh dushti* while 75% patient were having *kapha dosh dushti*,100% patients of both groups were having *Rasa dushyadushti* while *Mansa and Majjadushyadushti* were 80% and 71.66% respectively.15% patients were living in Noisy residential area, 18.33% patients were doing labor work and 35% patients were having history of addictions.

After doing inference confidently by Wilcoxon Sign Rank Test, it is found that in group A except for Vertigo difference between before treatment and after treatment are statistically highly significant for Tinnitus and Deafness. Also in group B treatment with *Bilva Taila Karnapuran* are effective in relieving symptoms of *Presbycusis* except for symptom Vertigo.

After doing Mann-Whiteny U Test to examine difference between effect of treatment in both groups it is found that for Tinnitus & Deafness the inference is highly significant. I.e. for above symptoms Group A shows better result than Group B .But for Vertigo the inference is in-significant. The properties of *Bilvataila* i.e. acidic nature, excess of hydrogen ions are useful for capillary circulation. Increased H^+ ions concentration dilate the capillary. As Bilva*taila* is having excess of H^+ ions concentration it causes dilatation of capillary. Irritation of the skin produces vasodilatation in the locality. In neurology this reflex is known as Axon reflex. From the above discussion, it is clear that Subjects having clinical features of *Presbycusis* are more significantly reduced in Group A than Group B which itself prove that treatment with *Bilva Taila Karnabasti* is better than treatment with *Bilva Taila Karnapuran in presbycusis.*

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