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Research Article

A RANDOMIZED CLINICAL TRIAL OF *GOKSHURADI GHAN VATI* AND *GOKSHURADI RASAYANA CHURNA* ALONG WITH *SWARJIKADYA TAILA KARNA PICHU* IN THE MANAGEMENT OF *KARNASRAVA* WITH SPECIAL REFERENCE TO CHRONIC SUPPURATIVE OTITIS MEDIA

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ABSTRACT

Karnasrava means flow, oozing, dropping, exudate or discharge through ear. *Karnasrava* correlates in modern science with C.S.O.M. C.S.O.M. are a chronic inflammation of the middle ear which is the result of an initial episode of acute otitis media and characterized by recurrent discharge from the middle ear through a tympanic perforation. According to WHO prevalence of C.S.O.M. involves 65-330 million individuals with draining ears, 60% of whom (39-200 million) suffers from significant hearing impairment. **Material and Method:** The present study is done with 30 patients of *Karnasrava* divided into two groups, 15 patients were treated with *Gokshuradi Ghan Vati* along with *Swarjikadya Taila Karna Pichu* rest 15 were treated with *Gokshuradi Rasayana Churna* along with *Swarjikadya Taila Karna Pichu*. **Result:** It showed that *Gokshuradi Ghana vati* along with *Swarjikadya Taila Karna Pichu* showed slightly significant as compared to *Gokshuradi Rasayana Churna* along with *Swarjikadya Taila Karna Pichu*. **Discussion:** *Swarjikadya Taila* is acts as *Sthanika Snehana* and *Swedana,* thus causes increased local warming, pseudo-inflammation and increased blood circulation there by helping in better absorption to affected site. Most of the drugs of *Gokshuradi Ghana Vati* have *Rasayana, Kasa-Shwashara, Vedanasthapana, Shulaprashmana, Shothahara, Balya, Vranashodhana, Vranaropana, Krimighna, Deepana, Pachana* properties. **Conclusion:** Both groups showed good result in the management of *Karnasrava* but *Gokshuradi Ghan vati* along with *Swarjikadya taila Karna pichu* showed slightly significant as compared to *Gokshuradi Rasayana Churna* along with *Swarjikadya Taila Karna Pichu*.

INTRODUCTION

Ears are prone to 28 different kinds of ailments (according to *Sushruta*) and *Karnasrava* is one of them[1]. *Acharya Charaka* included *Karnasrava* as a symptom under the four types of *Karnarogas* due to vitiation of different *Doshas*[2]. *Acharya Vagbhatta* has not described *Karnasrava* separately *Karnasrava* means flow, oozing, dropping, exudate or discharge through ear. According to *Sushruta Karnasrava* is discharge of pus from a *Vata* affected ear may result from head injury or due to immersion in water or else due to suppuration or bursting of an abscess[3].

Other causes like *Avasyaaya* (dew), *Pratishyaya* (common cold), *Mithyayogena shsastrasya, Mithyayogena shabdasya* are also included by *Sushruta. Karnasrava* can correlate in modern science with C.S.O.M. C.S.O.M. is a chronic inflammation of the middle ear which is the result of an initial episode of acute otitis media and characterized by recurrent discharge from the middle ear through a tympanic perforation. A history of at least 2 weeks of persistent ear discharge is pointed towards CSOM, if the ear could be dry mopped to see the ear drum, then the diagnosis of C.S.O.M. can be confirmed by observing the perforation in the tympanic membrane. C.S.O.M. is

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defined as irreversible changes within the mucosa of middle ear. More prone groups for C.S.O.M. are lower socioeconomic status (due to poor nutrition and lack of health education), upper respiratory tract infections, swimming and diving, traumatic perforation of tympanic membrane, infections of tonsils and adenoids, chronic rhinitis and sinusitis, nasal allergy, cleft palate, exanthematous fevers (like measles, diphtheria, whooping cough), living in overcrowded conditions, history of multiple episodes of acute otitis media etc.

According to *Acharya Sushruta uttartantra* 21/40- *Karnasrava* is treated by *Shirovirechana (Nasya), Dhupana, Poorana, Pramarjana, Dhaavana* and oral drug therapy etc[4]. In modern science patients of C.S.O.M. are treated with topical antiseptics or antibiotics after cleaning the ear canal for at least 2 weeks, administrating antibiotics, anti-pseudomonal drugs etc. Patients having intracranial and extra cranial infections are more appropriately treated with surgery.

***Samprapti* of *Karnasrava*[5]**

Nidana Sevana

⇩

Vata – Kapha Sanchaya

⇩ Common aggravating factors

Vata- Kapha Prakopa

⇩ *Prasara* in different organs

Sthana Samshraya in Karna

⇩ Further *Nidana Sevana*

Karnasrava

Need for Study

According to WHO prevalence, global burden of C.S.O.M. involves 65-330 million individuals with draining ears, 60% of whom (39-200 million) suffers from significant hearing impairment. C.S.O.M. accounts for 28,000 deaths. It is an important cause of preventable hearing loss particularly in the developing world [6]. In modern science, mostly treatment approach of C.S.O.M. have been surgical, expensive, difficult and does not lead to satisfactory hearing improvement and inaccessible in many developing countries. C.S.O.M. is one of the most common complain encountered in clinical practice of ENT[7].

Considering all these points, there is a need to search an effective, preventive and safe treatment. In classical text appealable formulations are described under *Karnaroga Chikitsa*. Hence there is definitely a scope of research for better solution in the disease *Karnasrava.*

AIM AND OBJECTIVE

Aim

1. To evaluate the efficacy of Ayurvedic drugs on *Karnasrava* w.s.r. to C.S.O.M.

Objectives

1. To evaluate the efficacy of *Gokshuradi Ghan Vati* on *Karnasrava* w.s.r. to C.S.O.M.
2. To evaluate the efficacy of *Gokshuradi Rasayana Churna* on *Karnasrava* w.s.r. to C.S.O.M.
3. To evaluate the efficacy of *Swarjikadya Taila Karna Pichu* on *Karnasrava* w.s.r. to C.S.O.M.

MATERIAL AND METHOD

Conceptual Study: There was critical review of relevant literature in Ayurveda and modern text books, previous research papers and thesis.

Clinical Study

Selection of Cases

Source: The study was conducted on 30 clinically diagnosed patients of *Karnasrava* from OPD/IPD of *Shalakya Tantra* Department, NIA, Jaipur.

CTRI Registration Number – CTRI/2021/07/035178

Inclusion Criteria

Patient having specific signs and symptoms of *Karnasrava* (C.S.O.M.) on Ayurvedic and modern parameters were registered for the present clinical trial.

Age - 7 years to 70 years

Exclusion Criteria

- Systemic diseases like uncontrolled DM, meningitis, tuberculosis, HTN etc.
- History of long term intake of ototoxic drugs
- Pregnant women
- C.S.O.M. with complications like– acute mastoiditis, petrositis, facial paralysis, adenoids, tonsillitis, labyrinthitis etc.
- Traumatic perforation of tympanic membrane.

Diagnostic Criteria

- **Symptom:** *Karnasrava* (ear discharge)
- **Associate Symptom:** *Badhirya* (conductive hearing loss) and *Karnakandu.*

Plan of Study

1. **Proforma:** A particular proforma was prepared to maintain the records of the whole observations regarding the disease.
2. **Investigation:** Following investigations were carried out to assess the condition and to exclude any other pathology of the patients.

Laboratory investigation

CBC, FBS, Ear Swab Culture and Sensitivity

Grouping of Patients

Total 30 patients with signs and symptoms of *Karnasrava* (C.S.O.M.) were registered and randomly divided into two groups irrespective of their age, sex, occupation, religion, socioeconomic status etc.

- **Group A:** 15 patients were treated with *Gokshuradi Ghan Vati* along with *Swarjikadya Taila Karna Pichu.*
- **Group B**: 15 patients were treated with *Gokshuradi Rasayana Churna* along with *Swarjikadya Taila Karna Pichu*.

The description of individual drugs is as follows

1) *Gokshuradi Ghan Vati*[8]- (*Astang Hridaya Uttartantra* 39/160)

Sr.No.	Drugs	Botanical Name	Part Used	Quantity
1.	*Gokshura*	*Tribulus terrestris* Linn	Fruit	1 Part
2.	*Amalaki*	*Emblica officinalis* Gaertn	Fruit	1 Part
3.	*Guduchi*	*Tinospora cordifolia (*willd*)*	Stem	1Part

2) *Gokshuradi Rasayana Churna*[9]- (*Astanghridaya Uttartantra* 39/160)

Sr.No.	Drugs	Botanical Name	Part Used	Quantity
1.	*Gokshura*	*Tribulus terrestris* Linn	Fruit	1 part
2.	*Amalaki*	*Emblica officinalis* Gaertn	Fruit	1 part
3.	*Guduchi*	*Tinospora cordifolia (*willd*)*	Stem	1 part

3) *Swarjikadya Taila*[10]- (*Bhaishajya- Ratnavali Chi.* 62/27)

Sr.No	Drugs	Botanical Name	Part Used	Quantity
1.	*Swarjika*	Na_2Co_3	Powder	1 Part
2.	*Mulaka*	*Raphanus sativus* Linn.	Rhizome	1 Part
3.	*Hingu*	*Ferula northex* Boiss.	*Niryasa*	1Part
4.	*Krishna*	*Piper longum* Linn.	Fruit	1Part
5.	*Mahoaushadha*	*Zingiber officinale* Rosc.	Rhizome	1Part
6.	*Satpushpa*	*Anethum sowa* Kurz.	Fruit	1Part

Drug, Dose and Duration of Trial

1. ***Gokshuradi Ghan Vati***
   - Adult dose- (500mg) twice a day, orally (after meal)
   - Children dose- 250mg twice daily, orally (after meal)
   - Duration- 30 days
   - *Anupaan* - Milk
2. ***Gokshuradi Rasayana Churna***
   - *A*dult dose- 5gm twice a day, orally (after meal)
   - Children dose- 3gm twice a day, orally (after meal)
   - Duration- 30 days
   - *Anupaan – Madhu* & *Ghrita*
3. ***Swarjikadya Taila* -** 1ml each in ear canal twice a day in *Pichu* form.
   - Duration - 30 days (3 sitting of 7 days with an interval of 3 days in each sitting)

Follow Up - 15 days

Total Duration of Study - 30 days

Assessment Criteria

The results of the clinical trial were assessed, based on the observations of clinical features and laboratory findings. Following parameters were adopted for assessing the patients before, during and after treatment.

Subjective

Following signs and symptoms were examined during the course of therapy.

- *Karnasrava* (Presence/absence of discharge)
- *Badhirya* (Conductive hearing loss)
- *Karnakandu* (Itching in ear)

Objective

Following objectives were assessed before and after trial.

- Otoscopy
- Ear Swab Culture and Sensitivity
- Pure Tone Audiometry

Present study had been planned with following criteria:

Assessment was done on the basis of improvement in the clinical condition of the patient. A specific scoring pattern was adopted to assess the improvement.

S.No.	Subjective	BT	AT	Follow up15 days
1.	*Karnasrava*			
2.	*Badhirya*			
3.	*Karna kandu*			

Subjective symptoms were assessed with the help of following scoring pattern - Grading

Ear discharge quantity	
Grade-0	Nil/Absent
Grade-1	Scanty (seen on the tip of cotton bud)
Grade-2	Moderate (feeling of discharge in ear, needs moping)
Grade-3	Profuse (discharge comes outside)
Consistency of Ear discharge	
Grade-0	Nil/Absent
Grade-1	Serous/ Mucoid
Grade-2	Mucopurulent
Grade-3	Sanguineous
***Karnakandu* (Itching in ear)**	
Grade-0	Nil / Absent
Grade-1	Occasional itching
Grade-2	Continuous mild itching
Grade-3	Continuous severe itching

Objective symptoms were assessed with the help of following scoring pattern

S.N.	Objective	BT	AT	Follow up
				15th day
1.	Pure Tone Audiometry			
2.	TM assessment (otoscopy)			
3.	Swab culture			

***Badhirya* (Hearing Loss)**	
Grade-0	Normal Hearing
Grade-1	Able to hear when there is discharge
Grade-2	Diminished hearing irrespective of discharge
Grade-3	Severe hearing loss persists through out
Pure Tone Audiometry	
Grade-0	0-25 dB
Grade-1	26-40 dB
Grade-2	41-60 dB
Grade-3	61-80 dB
Grade-4	81dB or greater
Swab culture	
Grade-0	Micro-organisms absent
Grade-1	Micro-organisms present

OBSERVATION AND RESULT

Observation

- In the present study, it was observed that majority of patients (80%) were having *Avashyaya* as *Nidana* followed by 53.33% of patients having *Jalakrida Nidana Sevana*.
- It was observed that maximum number of patients (41.17%) were found infected with Stephylococcus aureus, 20.58% of patients had no growth, 17.64% of patients infected with Coagulase negative staphylococcus, 11.76% of patients were infected with Pseudomonas, 5.88% of patients were infected with E. Coli, 2.94% of patients were infected with Enterococcus bacterial infection. Data shows that Stephylococcus infection is common in the patients of *Karnasrava.*
- It was observed that maximum number of patients (93.33%) had gradual onset of *Karnasrava,* with unilateral ear involvement (86.67%), continuous *Srava* (53.33%), moderate quantity (73.33%), yellow colour (80%), and purulent discharge (53.33%) and without smell (100%).
- Maximum number of patients had unilateral (53.33%) ear involvement in *Karnakandu,* intermittent *Karnakandu* (60%), mild severe *Karnakandu* (60%) and 53.33% of patients had *Karnakandu* in non-specific.
- Majority of patients (63.33%) had gradual hearing loss, 53.33% of patients had mild hearing loss and 60% of patients had gradual onset of *Badhirya.*

RESULT

Table 1: Effect of therapy on subjective parameters in Group A (n=15, Wilcoxon Sign Rank test)

Parameters	BT	AT	M.D	% of Change	SD	SE	W	P	S
***Karnasrava* Quantity**	1.73	0.13	1.6	92.30	0.50	0.13	120	<0.001	**HS**
***Karnasrava* Consistency**	1.80	0.13	1.67	92.59	0.48	0.12	120	<0.001	**HS**
Badhirya	0.66	0.53	0.13	20.00	0.35	0.09	3.00	>0.05	**NS**
Karnakandu	1.26	0.33	0.93	73.68	0.25	0.06	105	<0.001	**HS**

Table 2: Effect of therapy on subjective parameters in Group B (n=15, Wilcoxon Sign Rank test)

Parameter	BT	AT	Mean Diff.	% of Change	SD	SE	W	P	S
***Karnasrava* Quantity**	2.06	0.86	1.2	58.06	0.41	0.10	120	<0.001	**HS**
***Karnasrava* Consistency**	2.13	0.93	1.2	56.25	0.56	0.14	105	<0.001	**HS**
Badhirya	0.86	0.80	0.06	7.69	0.25	0.06	1.00	>0.05	**NS**
Karnakandu	1.06	0.40	0.66	62.50	0.81	0.21	28.00	<0.05	**S**

Table 3: Effect of therapy on objective parameters in Group A (n=15, paired t test)

Parameters	BT	AT	% of Change	SD	SE	T	P	S
Hb	13.24	13.21	0.20	0.21	0.05	0.03	>0.05	**NS**
TLC	7.72	7.32	5.26	0.40	0.10	0.26	<0.05	**S**
Neutrophils	56.64	56.18	0.80	4.19	1.08	0.02	>0.05	**NS**
Lymphocytes	32.85	30.86	6.04	3.14	0.81	0.16	<0.05	**S**
Monocytes	6.60	6.10	7.57	0.76	0.19	0.16	<0.05	**S**
Eosinophils	3.86	3.77	2.43	0.36	0.09	0.06	>0.05	**NS**
Basophils	0.75	0.54	27.43	0.33	0.08	0.15	<0.05	**S**
FBS	84.18	83.99	0.22	2.06	0.53	0.02	<0.05	**S**
Pure Tone Audiometry	0.66	0.60	10.00	0.24	0.06	0.06	>0.05	**NS**
TM Assessment by Otoscope	1.40	1.20	14.28	0.40	0.10	0.12	>0.05	**NS**
Swab culture	0.86	0.40	53.84	0.61	0.15	0.19	<0.05	**S**

Table 4: Effect of therapy on objective parameters in Group B (n=15, paired t test)

Parameters	BT	AT	% of Change	SD	SE	T	P	S
Hb	14.27	14.26	0.04	0.11	0.02	0.01	>0.05	**NS**
TLC	7.24	7.28	0.45	0.37	0.09	0.02	>0.05	**NS**
Neutrophils	56.34	56.73	0.69	4.05	1.04	0.02	>0.05	**NS**
Lymphocytes	30.61	28.15	8.05	4.81	1.24	0.13	>0.05	**NS**
Monocytes	8.21	7.42	9.65	0.82	0.21	0.24	<0.05	**S**
Eosinophils	3.72	3.64	2.32	0.85	0.22	0.02	>0.05	**NS**
Basophils	0.71	0.56	20.56	0.18	0.04	0.20	<0.05	**S**
FBS	89.17	87.45	1.93	3.10	0.80	0.14	<0.05	**S**
Pure Tone Audiometry	0.87	0.80	7.69	0.24	0.06	0.06	>0.05	**NS**
TM Assessment by Otoscope	1.46	1.26	13.63	0.40	0.10	0.12	>0.05	**NS**
Swab culture	0.93	0.46	50.00	0.49	0.12	0.24	<0.05	**S**

Comparative results

Table 5: Comparative effect of both the groups in subjective parameters (n=30, Mann Whitney U Test)

Parameters (n=30)	Mean		U'	P	S
	Group A	Group B			
***Karnasrava* Quantity**	1.60	1.20	67.50	<0.05	**S**
***Karnasrava* Consistency**	1.67	1.20	65.00	<0.05	**S**
Badhirya	0.06	0.06	112.50	>0.05	**NS**
Karnakandu	0.93	0.80	97.50	>0.05	**NS**

Table 6: Comparative effect of both the groups in Objective Parameters (n=30, unpaired T Test)

Parameters (n=30)	Mean		T	P	S
	Group A	Group B			
Hb	0.02	0.06	0.32	>0.05	**NS**
TLC	0.41	0.03	3.10	<0.05	**S**
Neutrophils	0.45	0.39	0.56	>0.05	**NS**
Lymphocytes	1.98	2.46	0.32	>0.05	**NS**
Monocytes	0.50	0.79	1.01	>0.05	**NS**
Eosinophils	0.09	0.08	0.02	>0.05	**NS**
Basophils	0.20	0.14	0.61	>0.05	**NS**
FBS	0.19	1.72	1.59	>0.05	**NS**
Pure Tone Audiometry	0.06	0.06	0.00	>0.05	**NS**
TM Assessment by Otoscope	0.20	0.20	0.00	>0.05	**NS**
Swab culture	0.46	0.46	0.00	>0.05	**NS**

Table 7: Overall Effect of Therapy

Effect of therapy	Group A	%	Group B	%	Total	Total %
Marked improvement	**06**	**40.00**	**02**	**13.33**	**08**	**26.67**
Moderate improvement	**07**	**46.67**	**09**	**60.00**	**16**	**53.33**
Mild improvement	**02**	**13.33**	**04**	**26.67**	**06**	**20.00**

DISCUSSION

Discussion on Trial Drugs with Their Probable Mode of Action

Gokshuradi Ghana Vati and *Gokshuradi Rasayana Churna*

- *Gokshuradi Ghana vati* and *Gokshuradi Rasayana Churna* has 3 contents- *Gokshur*, *Amalaki* and *Guduchi.* (one part each) *(Astanga Hardayam* of *Shrimad Vagbhata* edited with *Nirmala* Hindi Commentary by Dr. Brahmanand Tripathi, Chaukhamba Sanskrit Pratishthan Delhi, Astanghridaya Uttartantra 39/160). Most of the drugs of *Gokshuradi Ghana Vati* have *Rasayana, Kasa-Shwashara, Vedanasthapana, Shulaprashmana, Shothahara, Balya, Vranashodhana, Vranaropana, Krimighna, Deepana, Pachana* properties. In *Karnasrava, Avashyaya* is main *Nidana* which is *Vata* dominant and here most of the drugs have *Kapha-Vata Shamaka* properties, *Guduchi* has *Tridosha Shamaka* properties, which helps in *Samprapti Vighatana*. Here all the drugs have *Ushna Virya* properties which enhances local as well as general metabolism of body. It also helps in drying up the *Srava* and gives quick action of drug. Most of the drugs have antioxidant and nervine tonic properties which help in prevention of cochlear damage or further *Badhirya.* It is proved that *Guduchi* has immune-modulator effect, which helps in boosting up the immune system and prevention of repeated infections[11]. Considering all these points it is very useful in *Karnasrava,* because in later stage *Karnasrava* becomes just like *Nadivrana* and it has involvement of *Avrita Vata.*
- *Gokshuradi Ghan Vati* can be considered as the water soluble extract of *Gokshuradi Rasayana Churna*, which in the present study has demonstrated better efficacy than *Churna*. No previous literature is available citing better efficacy of *Ghana* compared to the *Churna* formulation. However in the present context a few factors can be considered which may have contributed to the better efficacy of *Ghana*. One of the reason is its better palatability than *Churna* form another is its fixed dose in the form of *Vati*/tablet. Both may have been the contributing factors for patient acceptability, while the trial group which was administered *Churna* may have found it difficult to take the proper dosage owing to its form as well as taste. When we consider the ingredients of *Rasayana Churna* it can be found that there are no volatile ingredients in the formulation and hence the *Ghana* prepared from the *Churna* can be believed to have the actives present in *Churna* from which maintained its efficacy.

2. *Swarjikadya Taila*

- It contains *Shudha Swarjika, Mulak, Hingu, Pippali, Sunthi* and *Shatpushpa* as *Drava Dravya* and *Tiala Taila* as base. Most of the drugs of *Swarjikadya Taila* have *Krimighna, Jantughna, Kandughna, Kushthaghna, Lekhana, Vishaghna, Vedanasthapana, Vranashodhana, Vranaropana, Varnyakara, Putihara, Shulaprashmana* properties. Due to these properties the *Swarjikadya Taila* relieves local pain and do *Kleda-Achushana* which helps in alleviating *Karnasrava,* and regeneration of the tympanic membrane. All the drugs of *Swarjikadya taila* have *Ushna virya, Katu Vipaka* and *Kapha-Vata shamaka* properties, which helps in drying up the *Srava* and elimination of *Kapha Dosha. Ushna* potency indicates the quick action of drug. *Pippali* has *Yogavahi* properties which help in enhancing the effect of drug. *Pippali* and *Sunthi* are strong insecticidal, which helps in elimination of local infection. *Ushna and Tikshna Guna* of *Swarjika* helps in drying up the *Srava.*
- It will facilitate longer residence time of drug in ear canal, thereby increases availability of drug to the tissues. Local action of *Karnapichu* is based on cellular absorption of medicine. It also absorbs the discharge or exudates from the ear which helps in quick healing process.

Probable Mode of Action of *Karnapichu*

- *Karnapichu* is a procedure where in cotton wick dipped in lukewarm oil medicated oil is inserted into the external auditory canal. In the present study, *Karnapichu* of *Swarjikadya Taila* is used in patients with C.S.O.M.
- Ear canal is cleaned thoroughly to remove the discharge and other debris which facilitates the drug absorption. The lukewarm *Swarjikadya Taila* is acts as *Sthanika Snehana* and *Swedana,* thus causes increased local warming, pseudo inflammation and increased blood circulation there by helping in better absorption to affected sites. It will facilitate

longer action of drug in ear canal, thereby increases availability of drug to the tissues. Local action of *Pichu* is based on cellular absorption of medicine. It also absorbs the discharge or exudates from the ear which helps in quick healing process.

- In the present study, *Karnapichu* of *Swarjikadya Taila* is used in patients of *Karnasrava. Karna Pichu* is a procedure where cotton wick dipped in Luke warm oil or medicated oil is inserted into the external auditory canal. Ear canal is cleaned thoroughly to remove the discharge and other debris which facilitates the drug absorption. The lukewarm *Swarjikadya Taila* is acts as *Sthanika Snehana* and *Swedana,* thus causes increased local warming, pseudo-inflammation and increased blood circulation there by helping in better absorption to affected site.
- All the drugs of *Swarjikadya taila* have *Ushna virya, Katu Vipaka* and *Kapha-Vatashamaka* properties, which help in drying up the *Srava* and eliminations of *Kapha Dosha. Ushna Virya* helps in quick action of drug. *Pippali has Yogavahi* properties which enhance the effect of drug. *Pippali* and *Sunthi* are strong insecticidal, which helps in elimination of local infection. *Ushna and Tikshna Guna* of *Swarjika* helps in drying up the *Srava.*

Discussion on Effect of Therapy

- **Analysis of Subjective parameters of group A**: Statistically Highly Significant (<0.001) result were found in *Karnasrava* quantity (92.30%) *Karnasrava* Consistency (92.59%) and *Karnakandu* (73.68%) and Not Significant (>0.05) result was found in *Badhirya* (20.00%).
- **Analysis of Objective parameters of group A:** Statistically Not Significant (>0.05) results were found in Objective parameters i.e., Pure Tone Audiometry (6.45%), TM Assessment (8.75%), but Significant results (<0.05) found in Swab Culture and Sensitivity, TLC, Lymphocyte, Monocytes and Basophils.
- **Analysis of Subjective parameters of group B**: Statistically Highly Significant (<0.001) result was found in *Karnasrava* Quantity (26.54%) and *Karnasrava* Consistency (46.23%), Significant (<0.05) result was found in *Karnakandu* (65.41%) and Not Significant (>0.05) result was found in *Badhirya* (7.69%) Significant results (<0.05) found in Swab Culture and Sensitivity, TLC, Lymphocyte, Monocytes and Basophils.
- **Analysis of Objective parameters of group B**: Statistically Not Significant (>0.05) results were found in Objective parameters i.e., Pure Tone Audiometry (7.69%), TM Assessment (13.63%), Significant results (<0.05) found in Swab Culture and Sensitivity TLC, Lymphocyte, Monocytes and Basophils.

Intergroup comparison of Efficacy of both therapies

- **Efficacy on Quantity of *Karnasrava*:** Study shows that U value is 67.50, and P value is <0.05, that means significant, it reveals that there is statistically significant difference in efficacy of both treatments on quantity of *Karnasrava.*
- **Efficacy on Consistency of *Karnasrava*:** Present study shows that U value is 65.00 and P value is <0.05, that means significant, it reveals that there is statistically significant difference in efficacy of both treatments on consistency of *Karnasrava.*
- **Efficacy on *Badhirya*:** Present study shows U value is 112.50 and P value is >0.05, that means not significant, it shows that statistically there is no difference in both treatments on *Badhirya.*
- **Efficacy on *Karnakandu*:** Present study shows that U value is 112.50 and P value is >0.05, that means not significant, it shows that statistically there is no difference in both treatments on *Karnakandu.*

Intergroup comparison of efficacy of two therapies on Objective parameters of *Karnasrava*

- In the present clinical study it was observed that all the objective parameters are non-significant, it shows that statistically there is no difference in the efficacy of both treatments.

CONCLUSION

On the basis of clinical features *Karnasrava* can be correlated with chronic supportive otitis media having predominance of *Vata* and *Kapha Dosha*. *Karnapichu* is very effective treatment along with oral medicine in *Karnagata roga*. Both groups showed good result in the management of *Karnasrava* but *Gokshuradi Ghan vati* along with *Swarjikadya taila Karna pichu* showed slightly significant as compared to *Gokshuradi Rasayana Churna* along with *Swarjikadya Taila Karna Pichu*. *Shashti Upakrama* can be incorporated in treatment of *Karnasrava* (C.S.O.M) in further study on a larger sample.

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