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Comparative Evaluation of Vidanga Churna Pradhamana Nasya and Vidanga Taila Nasya in Kaphaja Shirashula (Chronic Rhinosinusitis): An Open-Label Randomized Double-Arm Clinical Study

Dr Navya R[1], Dr Sharanprasad Kolliyavar[2]

[1]Final year PG Scholar, Department of Shalakya Tantra, SDM Institute of Ayurveda and Hospital, Anchepalya, Bengaluru 560074.
[2]Associate Professor, Department of Shalakya Tantra, SDM Institute of Ayurveda and Hospital, Anchepalya, Bengaluru 560074.

ABSTRACT

Background: Chronic Rhinosinusitis (CRS) is a chronic inflammatory disorder involving the nasal and paranasal sinus mucosa that significantly affects quality of life. Despite advances in medical and surgical management, recurrence remains common and long-term treatment often imposes economic and psychological burden on patients. In Ayurveda, the symptomatology of Chronic Rhino Sinusitis closely resembles Kaphaja Shirashula. Nasya Karma is considered the prime treatment modality for diseases occurring above the clavicle. Vidanga (Embelia ribes Burm.f.), possessing Tikshna, Ruksha, Kapha-Vatahara and Shirovirechana properties, is indicated in Kapha-dominant disorders of the Shiras.

Objective: To evaluate and compare the efficacy of Vidanga Churna Pradhamana Nasya and Vidanga Taila Nasya in the management of Kaphaja Shirashula (Chronic Rhinosinusitis).

Materials and Methods: Forty patients fulfilling diagnostic criteria were randomly allocated into two groups consisting of twenty patients each. Group A received Vidanga Churna Pradhamana Nasya and Group B received Vidanga Taila Nasya for seven consecutive days. Assessment was carried out on Day 0 (Before Treatment), Day 8 (After Treatment) and Day 15 (Follow-up). Subjective parameters included headache, heaviness of head, nasal obstruction, nasal discharge and postnasal discharge. Objective assessment was performed using the SNOT-22 questionnaire. Statistical analysis was carried out using Friedman test, Wilcoxon signed-rank test and Mann–Whitney U test.

Results: Both interventions produced statistically significant improvement. Intergroup comparison revealed significantly superior improvement in Group A at post-treatment and follow-up assessments ($p < 0.001$).

Conclusion: Vidanga Churna Pradhamana Nasya demonstrated superior efficacy compared to Vidanga Taila Nasya in reducing symptom severity and improving quality of life among patients suffering from Kaphaja Shirashula (Chronic Rhinosinusitis).

Keywords: Kaphaja Shirashula, Chronic Rhinosinusitis, Vidanga, Pradhamana Nasya, Vidanga Taila Nasya, SNOT-22.

INTRODUCTION

Chronic Rhinosinusitis is a multifactorial inflammatory disorder characterized by persistent inflammation of the mucosa of the nose and paranasal sinuses for a duration exceeding twelve weeks. It is one of the most prevalent disorders encountered in otorhinolaryngological practice and affects approximately 10–15% of the adult population worldwide[1]. Patients commonly present with nasal obstruction, facial pain or pressure, nasal discharge, postnasal drip, headache, reduction in smell perception and sleep disturbances. Persistent symptoms adversely affect physical functioning, productivity and quality of life.

The pathogenesis of Chronic Rhino Sinusitis involves complex interactions between infectious agents, environmental allergens, mucosal inflammation, anatomical abnormalities and impaired mucociliary clearance. Conventional management consists of antibiotics, antihistamines, decongestants, corticosteroids and Functional Endoscopic Sinus Surgery (FESS). Though effective in selected cases, recurrence remains frequent and long-term dependence on medication is common.[2]

Ayurveda describes several disorders affecting the head under Shiroroga. Among them, Kaphaja Shirashula is characterized by Shiroguruta, Manda Ruk, Kapha upadigdha shira and gala,shuna akshikuta and vadana.[2] These features bear remarkable resemblance to Chronic Rhinosinusitis such as heaviness of head,headache and post nasal drip.

Nasya Karma is considered the most important Panchakarma procedure for Urdhwajatrugata Vikaras. It facilitates elimination of vitiated Doshas from the Shiras and restores normal physiological functioning. Vidanga, an important Shirovirechana Dravya, possesses Tikshna, Ruksha, Kapha-Vatahara, Krimighna and Vishaghna properties[3]. Owing to these attributes, it helps liquefy and expel accumulated Kapha from the Shirapradesha.

Although Vidanga Taila Nasya has been employed successfully in clinical practice, comparative evidence regarding Vidanga Churna administered through Pradhamana Nasya remains limited. Therefore, the present study was undertaken to compare the efficacy of these two interventions in Kaphaja Shirashula.

AIMS AND OBJECTIVES

Primary Objective

1. To evaluate the efficacy of Vidanga Churna Pradhamana Nasya in Kaphaja Shirashula.
2. To evaluate the efficacy of Vidanga Taila Nasya in Kaphaja Shirashula.
3. To compare the efficacy of both interventions.

Secondary Objective

To evaluate changes in SNOT-22 scores before and after intervention.

MATERIALS AND METHODS

Study Design

An open-label randomized double-arm interventional clinical study was conducted.

Source of Data

Patients attending the Outpatient and Inpatient Departments of Shalakya Tantra who fulfilled inclusion criteria were selected.

Sample Size

Forty patients completed the study.

Diagnostic Criteria

Patients presenting with symptoms suggestive of CRS persisting for more than twelve weeks and radiological evidence of sinus involvement were included.

Inclusion Criteria

- Patients diagnosed with Kaphaja Shirashula
- Age between 20–50 years
- Either gender
- Fit for Nasya Karma
- Chronicity less than one year

Exclusion Criteria

- Other types of Shiroroga
- Nasal polyps
- Gross DNS
- Malignancy
- Complicated sinusitis
- Congenital anomalies

Intervention

Group A (Trial Group)

Vidanga Churna Pradhamana Nasya was administered for seven consecutive days.

Group B (Control Group)

Vidanga Taila Nasya was administered for seven consecutive days.

Assessment Schedule

BT – Before Treatment (Day 0)

AT – After Treatment (Day 8)

AF – Follow-up (Day 15)

Assessment Criteria

Subjective Parameters

- Headache
- Heaviness of Head
- Nasal Obstruction
- Nasal Discharge
- Postnasal Discharge

Objective Parameter

SNOT-22 Questionnaire

Statistical Analysis

Data were analysed using SPSS Version 26. Non-parametric tests were employed. P-value less than 0.05 was considered statistically significant.

RESULTS

Effect on Headache

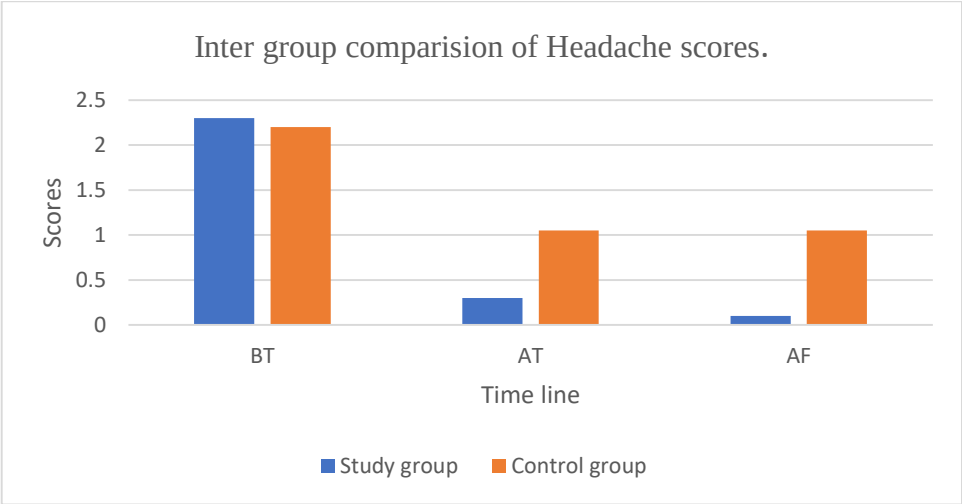
A substantial reduction in headache severity was observed in both groups. Group A showed greater redu-

ction indicating superior efficacy in relieving Kapha-related pain and heaviness.

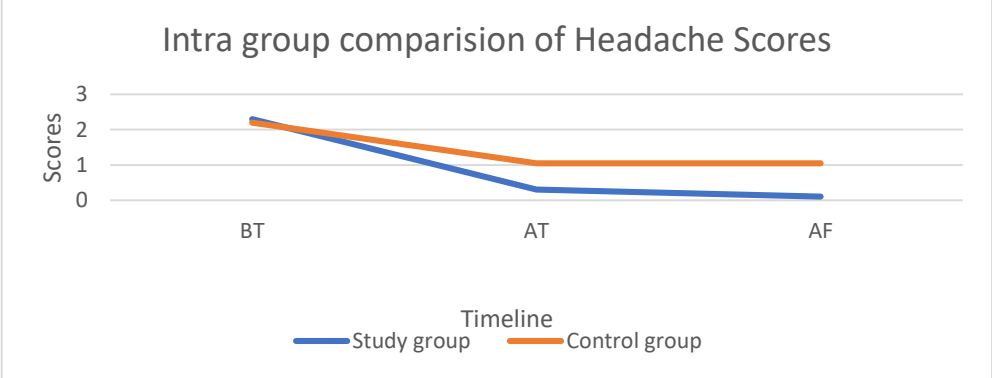
Table 1-Effect of Treatment on Headache between Study Group & Control Group

Headache	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value
BT	Study	20	2.30	0.73	2.0	180.0	-0.90	0.36#
	Control	20	2.20	0.41	2.0			
AT	Study	20	0.30	0.47	0.0	40.0	-4.10	0.000**
	Control	20	1.05	0.51	1.0			
AF	Study	20	0.10	0.31	0.0	35.0	-4.40	0.000**
	Control	20	1.05	0.60	1.0			

At **baseline (BT)**, no statistically significant difference was observed between the groups ($p > 0.05$), indicating comparability.
At **AT and AF**, a **highly statistically significant difference** was noted ($p < 0.001$), with the study group demonstrating significantly lower headache scores compared to the control group.
This suggests that the **intervention was highly effective in relieving headache**, with effects **maintained during follow-up**, whereas the control group showed only mild improvement.



Graph 1-Inter group comparision of Headache scores.



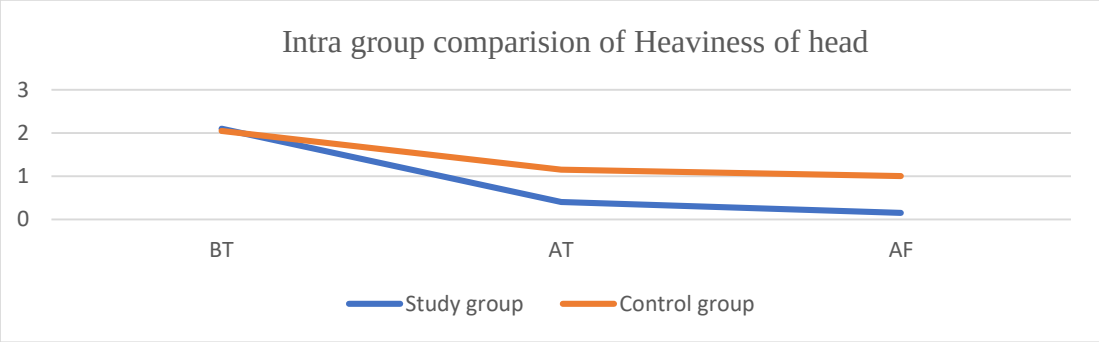
Graph 2-Intra group comparision of Headache scores.

Table 2-Effect of Treatment on heaviness of head between Study Group & Control Group

Heaviness of Head	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value
BT	Study	20	2.10	0.55	2.0	175.0	-1.00	0.31#
	Control	20	2.05	0.51	2.0			
AT	Study	20	0.40	0.50	0.0	42.0	-4.00	0.000**
	Control	20	1.15	0.67	1.0			
AF	Study	20	0.15	0.37	0.0	30.0	-4.30	0.000**
	Control	20	1.00	0.65	1.0			

The comparison between study and control groups using the Mann–Whitney U test revealed that at baseline (BT), there was no statistically significant difference between the groups ($p > 0.05$), indicating that both groups were comparable before treatment.

At after treatment (AT) and follow-up (AF), there was a highly statistically significant difference between the groups ($p < 0.001$), with the study group showing significantly lower scores compared to the control group. The median reduced from 2 to 0 in the study group, whereas in the control group it reduced only to 1, indicating a greater reduction in symptom severity in the study group. The marked decrease in mean scores further supports the superior efficacy of the intervention.

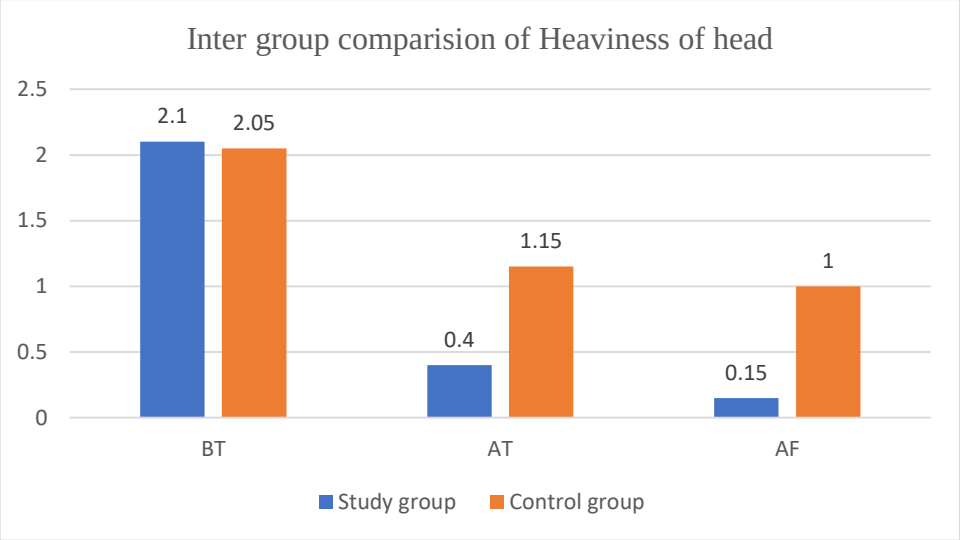


Graph 3- Intra group comparison of Heaviness of head.

There was a statistically significant difference observed in heaviness of head scores across the different time intervals ($p < 0.01$) from BT to AF in the control group.

The median reduced from 2 to 1, indicating a mild reduction in symptom severity. The mean rank decreased from 2.75 to 2.05, reflecting moderate improvement over time.

The Chi-square value was 18.6 with a p-value of 0.000, which is highly significant ($p < 0.001$), indicating that symptoms reduced over time even in the control group.

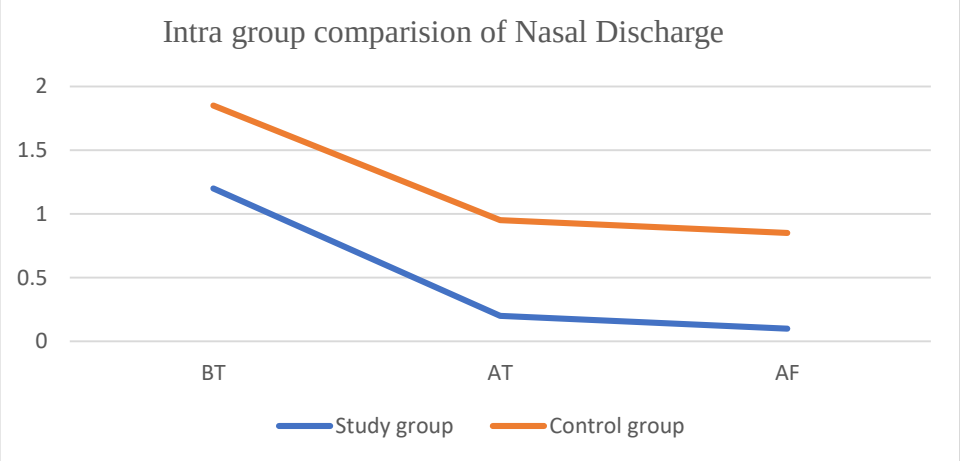


Graph 4- Inter group comparison of Heaviness of head.

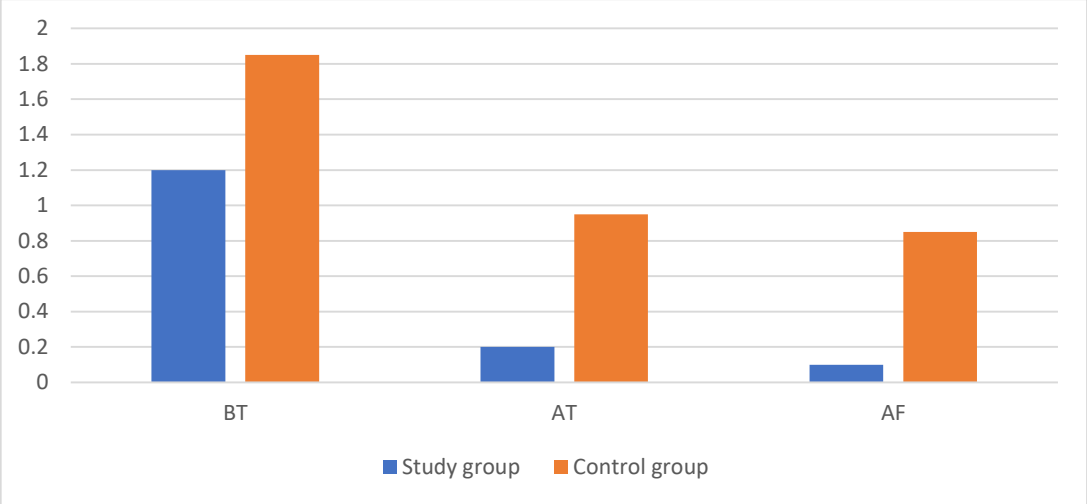
Table 3-Effect of Treatment on Nasal Discharge between Study Group & Control Group

Nasal Discharge	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value
BT	Study	20	1.20	0.83	1.5	160.0	-1.40	0.16#
	Control	20	1.85	0.49	2.0			
AT	Study	20	0.20	0.41	0.0	38.0	-4.20	0.000**
	Control	20	0.95	0.39	1.0			
AF	Study	20	0.10	0.31	0.0	30.0	-4.30	0.000**
	Control	20	0.85	0.49	1.0			

At BT, no statistically significant difference was found ($p > 0.05$), confirming baseline similarity.
At AT and AF, there was a highly significant difference ($p < 0.001$), with the study group showing significantly lower nasal discharge scores compared to the control group.
This demonstrates that the intervention was effective in controlling nasal discharge, with sustained improvement at follow-up.($p < 0.001$), indicating that symptoms reduced over time in the control group.



Graph 5- Intra group comparison of Nasal Discharge.

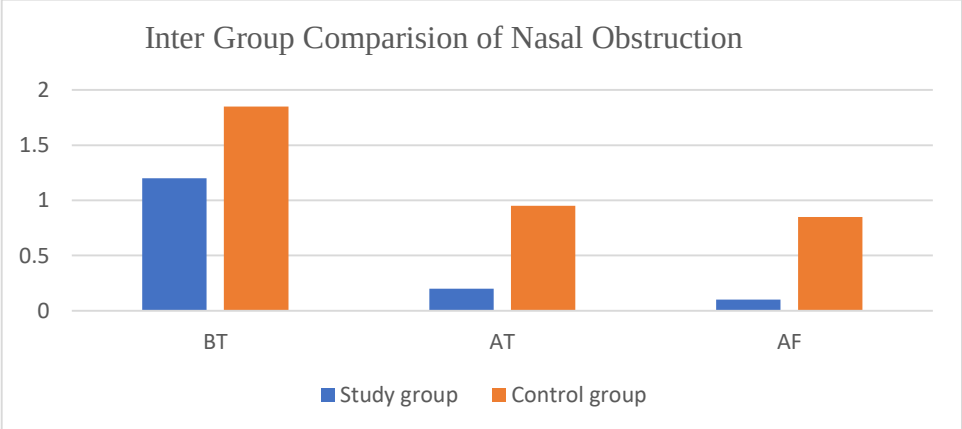


Graph 6- Inter group comparison of Nasal Discharge.

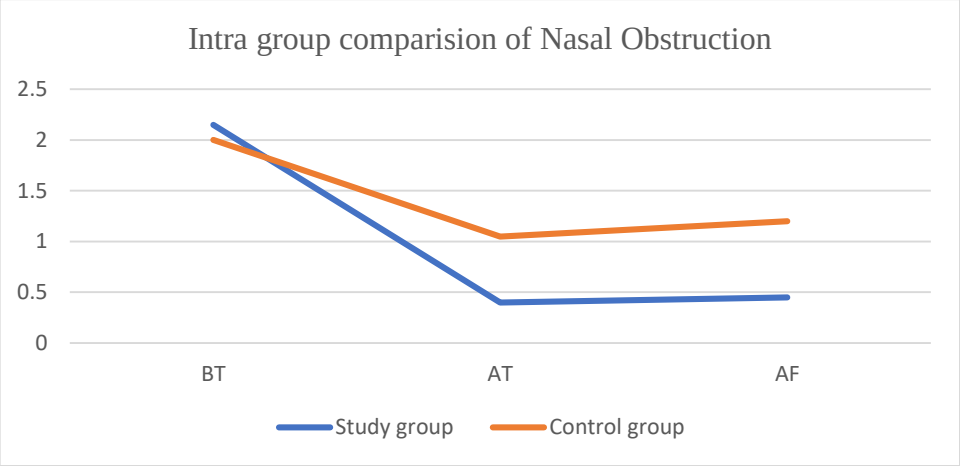
Table 4-Effect of Treatment on Nasal Obstruction between Study Group & Control Group.

Nasal Obstruction	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value
BT	Study	20	2.15	0.67	2.0	170.0	-1.10	0.27#
	Control	20	2.00	0.46	2.0			
AT	Study	20	0.40	0.50	0.0	40.0	-4.10	0.000**
	Control	20	1.05	0.51	1.0			
AF	Study	20	0.45	0.51	0.0	42.0	-4.00	0.000**
	Control	20	1.20	0.52	1.0			

At baseline, both groups were comparable with no significant difference ($p > 0.05$).
At AT and AF, a highly statistically significant difference was observed ($p < 0.001$), with the study group showing significantly better relief.This indicates that the intervention was effective in relieving nasal obstruction, with sustained benefits at follow-up, whereas the control group showed only moderate improvement. sustained benefit.



Graph 7-Inter Group Comparison of Nasal Obstruction



Graph 8- Intra group comparison of Nasal Obstruction.

Table 5-Effect of Treatment on Post Nasal Discharge between Study Group & Control Group.

PND	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value
BT	Study	20	1.80	0.41	2.0	165.0	-1.20	0.22#
	Control	20	1.90	0.31	2.0			
AT	Study	20	0.35	0.49	0.0	42.0	-4.00	0.000**
	Control	20	1.10	0.55	1.0			
AF	Study	20	0.10	0.31	0.0	30.0	-4.30	0.000**
	Control	20	0.90	0.55	1.0			

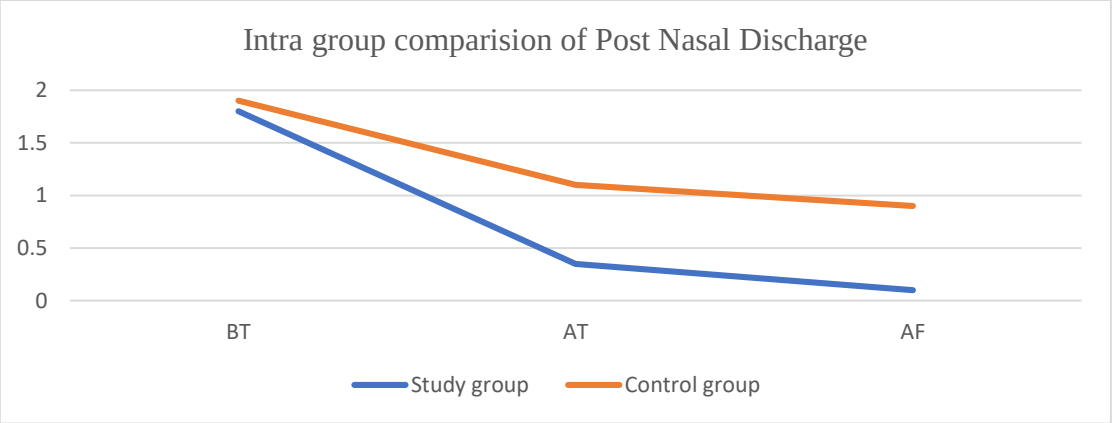
At BT, no statistically significant difference was observed ($p > 0.05$), indicating baseline comparability. At AT and AF, a highly significant difference was observed ($p < 0.001$), with the study group showing significantly lower scores compared to the control group. This suggests that the intervention was highly effective in reducing post nasal discharge, with near-complete resolution in the study group and only partial improvement in the control group.

Table 6-Effect of Treatment on Post Nasal Discharge between Study Group & Control Group.

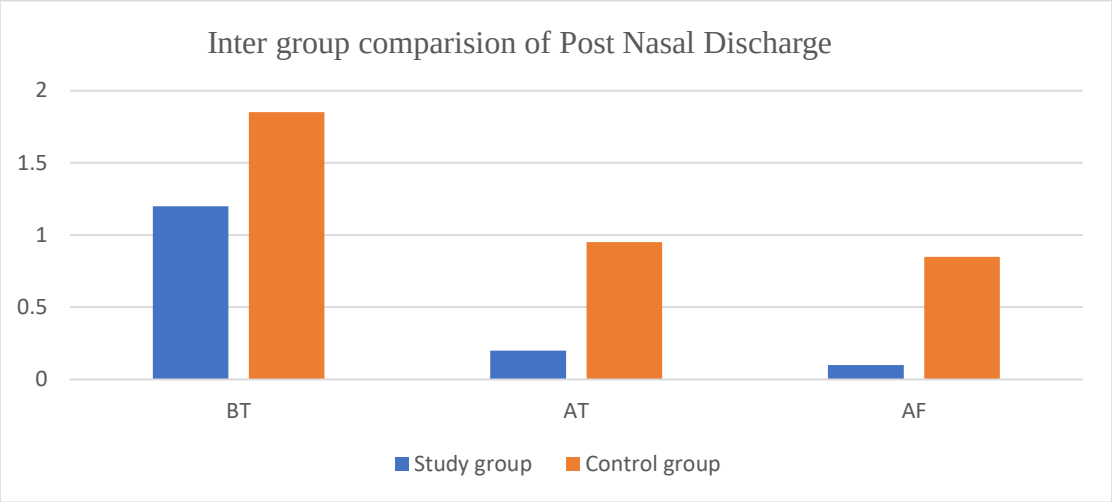
PND	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value
BT	Study	20	1.80	0.41	2.0	165.0	-1.20	0.22#
	Control	20	1.90	0.31	2.0			
AT	Study	20	0.35	0.49	0.0	42.0	-4.00	0.000**
	Control	20	1.10	0.55	1.0			
AF	Study	20	0.10	0.31	0.0	30.0	-4.30	0.000**
	Control	20	0.90	0.55	1.0			

At BT, no statistically significant difference was observed ($p > 0.05$), indicating baseline comparability. At AT and AF, a highly significant difference was observed ($p < 0.001$), with the study group showing significantly lower scores compared to the control group. This suggests that the intervention was highly

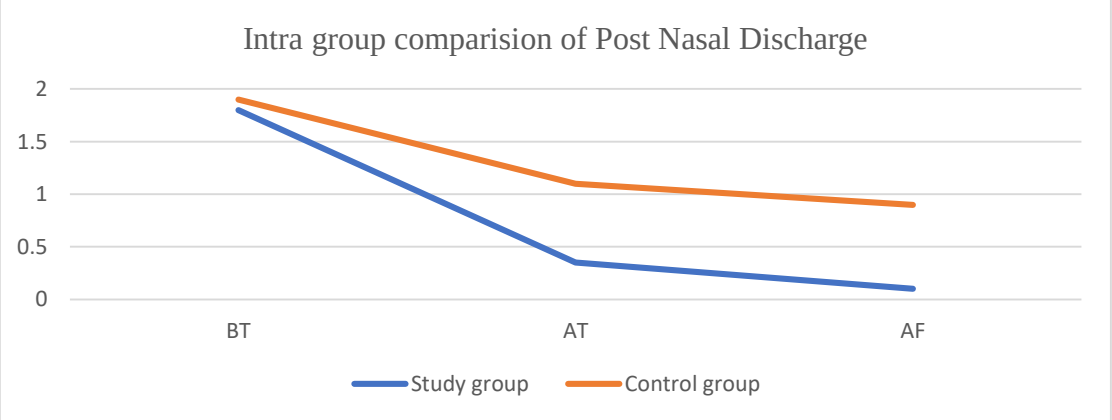
effective in reducing post nasal discharge, with near-complete resolution in the study group and only partial improvement in the control group.



Graph 10- Intra group comparison of Post Nasal Discharge.



Graph 8- Inter group comparison of Post Nasal Discharge.

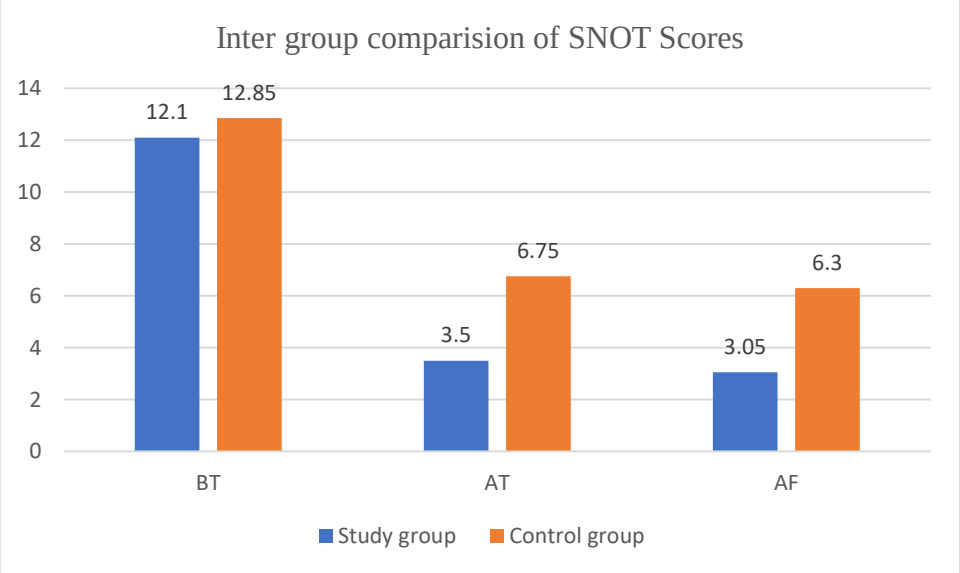


Graph 11- Intra group comparison of Post Nasal Discharge.

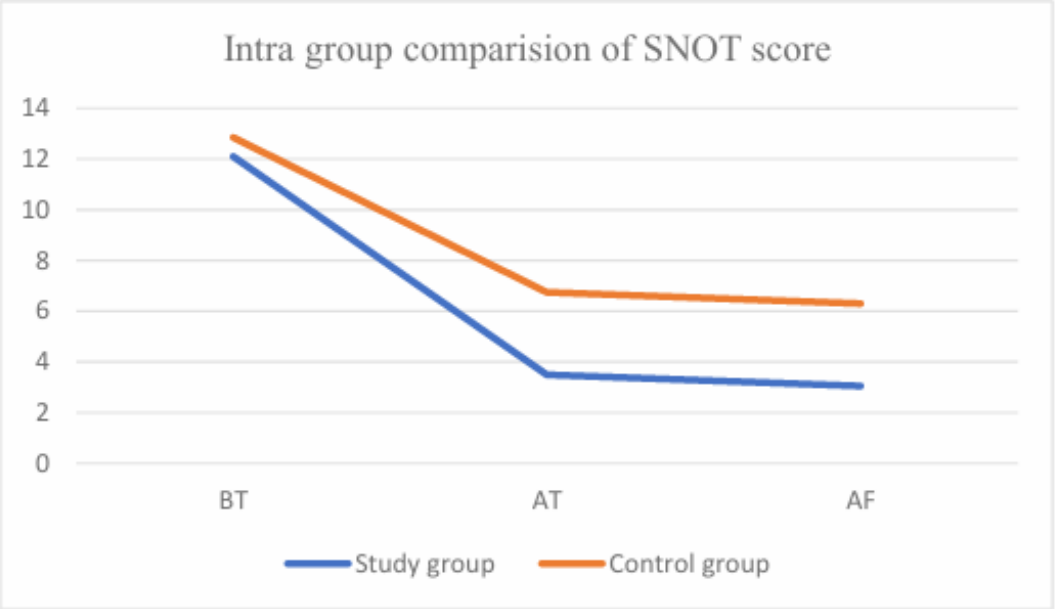
Table 6-Effect of Treatment on SNOT Score between Study Group & Control Group

SNOT Score	Group	N	Mean	Std. Deviation	Median	Mann-Whitney U value	Z value	p value of Mann-Whitney U test
BT	Study	20	12.10	3.28	12.5	182.0	-0.82	0.41#
	Control	20	12.85	2.47	13.5			
AT	Study	20	3.50	1.67	3.0	45.0	-4.20	0.000**
	Control	20	6.75	2.39	7.0			
AF	Study	20	3.05	1.57	3.0	38.0	-4.50	0.000**
	Control	20	6.30	2.15	6.5			

The comparison between study and control groups using the Mann–Whitney U test showed that:
At baseline (BT), there was no statistically significant difference between the groups ($p > 0.05$), indicating both groups were comparable before treatment.
At after treatment (AT) and follow-up (AF), there was a highly significant difference between the groups ($p < 0.001$), with the study group showing significantly lower SNOT scores compared to the control group. This indicates that the intervention produced a greater reduction in symptom severity compared to the control group. The improvement was not only significant immediately after treatment but was also sustained at follow-up.



Graph 12- Inter group comparison of SNOT score



Graph 13- Intra group comparison of SNOT score

DISCUSSION

Kaphaja Shirashula is primarily caused by Kapha accumulation in the Shirapradesha resulting in Srotorodha and impairment of normal Vata movement. Consequently, symptoms such as heaviness, obstruction, discharge and dull aching pain develop.

Vidanga possesses Tikshna and Ruksha Gunas which help liquefy and disintegrate accumulated Kapha. Its Shirovirechana action facilitates elimination of morbid Doshas from the Shiras. Administration through Pradhamana Nasya enables direct contact of the medicine with nasal mucosa, producing rapid local and systemic effects.

The fine powder particles stimulate the nasal mucosa and enhance drainage from paranasal sinuses. This improves mucociliary clearance and reduce inflammatory burden. Additionally, the procedure helps restore patency of nasal passages and facilitates removal of accumulated secretions.

Vidanga Taila Nasya also demonstrated beneficial effects through Sneha-mediated mucosal lubrication and anti-inflammatory action. However, the powder form appears to exert stronger shirovirechana action, explaining its clinical outcomes.

The significant reduction in SNOT-22 scores indicates improvement not only in local symptoms but also in overall quality of life. Sustained improvement at follow-up suggests prolonged therapeutic benefit.

CONCLUSION

Both Vidanga Churna Pradhamana Nasya and Vidanga Taila Nasya are effective in the management of Kaphaja Shirashula (Chronic Rhinosinusitis). However, Vidanga Churna Pradhamana Nasya demonstrated better efficacy in reducing symptom severity and improving SNOT-22 scores. The intervention is economical, minimally invasive, safe and easy to administer, making it a promising therapeutic option for Chronic Rhinosinusitis.

FUTURE SCOPE

1. The role of Vidanga Churna in reducing microbial colonization and sinonasal biofilms can be explored

through microbiological and molecular studies.

2. Experimental studies evaluating the anti-inflammatory, antimicrobial, Action on Nasal Flora of Vidanga helps establish its pharmacological basis more clearly.
3. Future studies can assess the effect of particle size, mode of insufflation, and drug deposition pattern on therapeutic outcomes in Pradhamana Nasya.
4. Studies assessing biochemical markers, inflammatory cytokines, and microbiome alterations before and after treatment provides objective evidence regarding the mechanism of action of the intervention.

References

1. Jain DM. Comparison of outcomes of management of chronic rhinosinusitis by conservative approach vs endoscopic sinus surgery with review of literature. J Med Sci Clin Res. 2017;5(3):19369-19378. doi:10.18535/jmscr/v5i3.165
2. Calus L, Van Bruaene N, Bosteels C, et al. Twelve-year follow-up study after endoscopic sinus surgery in patients with chronic rhinosinusitis with nasal polyposis. Clin Transl Allergy. 2019;9:30. Published 2019 Jun 14. doi:10.1186/s13601 019-0269-4.
3. Acharya YT, editor. Charaka Samhita of Agnivesha with Ayurveda Dipika Commentary of Chakrapanidatta. Reprint ed. Varanasi: Chaukhambha Surbharati Prakashan; 2021. Sutrasthana 17/21. p.124.
4. Dhingra PL. Disorders of Middle Ear. In: Dhingra PL, editor. Diseases of Ear, Nose and Throat. 3rd ed. New Delhi: Elsevier; 2004. p. 431-459.