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A Clinical Comparative Study on the Efficacy of *Nirgundi Patra Pinda Sweda* with and without *Matra Basti* in the Management of *Janu Sandhigat Vata* w.s.r. to Osteoarthritis of Knee

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ABSTRACT:

In *Vridhdhavastha*, *Vata Dosha* is in a dominant state and *Rasadi Dhatus* are in a deprived state. This potent combination is responsible for the aged being vulnerable to many diseases. Among them, *Sandhigata Vata*, which is equated to Osteoarthritis, stands top in the list of geriatric diseases. In current study efforts have been made to evaluate & compare the effect of *Nirgundi Patra Pinda Sweda* with and without *Matra Basti* on *Janu Sandhigata Vata*.

Aims and objectives: To evaluate & compare the effect of *Nirgundi Patra Pinda sweda* with and without *Matra Basti* in the management of *Janu Sandhigat Vata* w.s.r to Osteo-arthritis.

Materials and Methods: 30 Patients of *Janu Sandhigata Vata* were selected according to the classical signs and symptoms of *Sandhigata Vata* according to *Ayurveda* as well as Modern science, were randomly divided into 2 groups from the Govt. Akhandanand Ayurved Hospital, Ahmedabad. In group A 15 patients were treated with *Nirgundi Patra Pinda Sweda* And *Matra Basti* with *Ashwagandhadi Taila* and in group B 15 patients were treated with only *Nirgundi Patra Pinda Sweda*.

Result 20.00% patients got marked improvement and 80.00% got moderate improvement in group A and in group B 33.33% patients got moderate improvement and 66.67% showed mild improvement. *Nirgundi Patra Pinda Sweda* and *Matra Basti* with *Ashwagandhadi Tail* provided better result as compare to only *Nirgundi Patra Pinda Sweda* on management of *Janu Sandhigata Vata*.

Keywords: *Sandhigata Vata*, Osteoarthritis, *Matra Basti*, *Ashwagandhadi Taila*,

INTRODUCTION

According to *Ayurveda*, simple freedom from disease is not health. For a person to be healthy he should be mentally

and spiritually happy. Imbalance of *Doshika* equilibrium is term as *Roga*. Among *Tridosha*, *Vata* is responsible for all *Cheshta*. In old age, all *Dhatu* being to undergo *Kshaya*



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thus leading to *Vata Prakopa* and making the individual prone to many diseases. Among them *Sandhigata Vata* stands top in the list of geriatric disease. Knee-Osteoarthritis is a major cause of disability, limiting activity and impaired quality of life.

The *Sandhigata Vata* explained in *Ayurvedic* classics as *Sthana Visheshha Kruta Vatavyadhi*, under the concept of *Gatavata*¹. *Acharya Charaka*² has described the disease *Sandhigata Vata* under the context of *Vatavyadhi Chikitsa* chapter. He has mentioned it as *Sandhigata Anila*. The symptoms of *Shotha*, which is palpable as air filled bag (*Vata Purna Driti Sparsha*) and pain on flexion and extension of the joints (*Akunchana Prasarane Vedana*). *Acharya Sushruta* has described the disease *Sandhigata Vata* under *Vatavyadhi* chapter. He is the first who gave its line of treatment. He added a new symptom i.e. '*Hanti Sandhin (Sandhigrah)*'³.

Charaka Samhita does not mention any specific line of treatment for *Sandhigata Vata* but the general measures mentioned for *Vatavyadhi* are to be considered i.e. usage of *Sarpi, Taila, Vasa* and *Majja* in the form of *Seka, Abhyanjana and Basit*⁴. In *Ayurveda* different types of *Panchkarma* procedures are used along with *Shamana* treatment to treat *Sandhigat Vata*. Different types of *Basti, Abhayanga, Nadi Sweda, Patra Pinda Sweda, Janu Basti* etc. procedures are widely used for the management of *Sandhigata Vata* but which one is more effective and which *Karma* provides long lasting effect, it should be observed. Except *Basti* other procedures are performed locally and give only temporary relief. In present busy era, patient does not have much time to follow the *Parihara Kala* and after administration of *Matra Basti* no *Parihar kala* is required to be followed by the patient. So for present study *Matra Basti* with *Ashwagandhadi Tail* was selected. *Acharya Charaka* has included *Swedana Karma* under *Shad-Upakrama*⁵, and thus has given importance to *Swedana* as a principal method of treatment. *Swedana* is the Prime treatment modality for number of disorders especially *Vata & Kapha* predominant disease⁶. *Patra Pinda Sweda* is one of the most popular and easy procedure of *Panchakarma*. *Snehana* and *swedana* is a line of treatment In *Vata* dominant disease and impact of both these karma can be achieved simultaneously by *Nirgundi Patra Pinda Sweda*. It is an effective procedure to reduce *Sandhishoola* and *Sandhistabdhata*. *Nirgundi*, having *Vatashamaka, Vedanasthapaka* properties helps to disrupt the *Samprapti* of *Sandhigata vata*. So for present study *Nirgundi Patra Pinda sweda* was also selected.

MATERIAL AND METHODS

Ethical Clearance:

Study was started after obtaining Ethical clearance from Institutional Ethical Committee, Vide Certi. No.87 dated 12/07/2017. Govt. Akhandanand Ayurvedic College, Ahmedabad.

CTRI Registration

This clinical trial is registered under CTRI (Clinical Trials Registry of India) with CTRI no CTRI/2018/08/ 015425.

Selection of patients

Patients of *Janu Sandhigata Vata* were selected according to the classical signs and symptoms of *Sandhigat Vata* according to *Ayurveda* as well as Modern science, were randomly divided into 2 groups irrespective of age, sex, caste, religion, profession etc. from the OPD & IPD of Govt. Akhandanand Ayurved Hospital.

Inclusion Criteria:

For clinical study, patients having classical signs and symptoms of *Janu Sandhigat Vata* were selected from the OPD and IPD of Govt. Akhandanand Ayurved Hospital, Ahmedabad.

1. *Anuvasana Basti Yoga*.
2. *Swedana Yoga*
3. Patients presenting with the classical signs and symptoms of *Sandhi Vata (Osteoarthritis)* like *Vata Purna Druti Sparsh* (touch seems like air bag), *Sandhishhula* (pain in joints), *Sandhishotha* (swelling on joints), *Akunchan Prasarne Vedana* (pain during movement), *Sandhigraha* (Stiffness), *Sparsh Asahyata* (Tenderness), *Sandhisphutana* (Crepitating) etc.
4. Patients of either sex age between 40 – 70 years were included.

Exclusion Criteria:

1. *Anuvasana Basti Ayogya*.
2. Patients below 40 years and above 70 years of age.
3. Patients suffering from *Vatarakta, Amavata*, Systemic Lupus Erythematosus (SLE), Bone TB, diabetes, Psoriatic arthritis and other serious systemic disorders were excluded.

Diagnostic Criteria

Patients having classical signs and symptoms of the *Sandhigata Vata*⁷ according to *Ayurveda* as well as Modern science⁸ were taken into consideration.

INVESTIGATIONS:

1. **Hematological examination:** HB%, TLC, DLC, ESR
2. **Urine Examinations:** Routine and Microscopic
To rule out other pathologies
3. **Radiological Assessment:** Plain X-ray AP and Lateral view- standing position. (For diagnostic purpose)

Design Of Group And Management:

Study design: Open ended parallel clinical trial with Random sampling method.

After diagnosis patients were categorized into two group i.e Group A & B.

GROUP A: Total 15 *Basti* were administered to each patient in the course of *Matra Basti*. Simultaneously patients were also given *Nirgundi Patra Pinda Sweda* for 15 days.

1. *Matra Basti* :

- 15 *Matra Basti* were administered to each patient.
- Each *Basti* were administered as per classical method of *Matra Basti*.
- **Drug:** *Ashwagandhadi Taila*
- **Dose:** 60ml
- ***Basti Pradan kala:*** Immediately after meal (At noon)

2. *Nirgundi Patra Pinda Sweda* :

- **Drugs** – *Nirgundi Patra*
- **Dose:** 250gm of *Nirgundi Patra* fried in 40 ml of *Ashwadandhadi Taila*
- **Time** – At morning
- **Duration:** 15 days
- GROUP B:** Patients were treated only with *Nirgundi Patra Pinda Sweda* for 15 days.
- **Drug:** *Nirgundi Patra*
- **Dose:** 250gm of *Nirgundi Patra* fried in 40 ml of *Ashwadandhadi Taila*
- **Time:** At morning
- **Duration** – 4 weeks

Follow Up: After completion of the treatment, patient was advised to visit weekly for follow up for 4 weeks.

Informed Consent: Written consent of the patient was taken before starting the intervention.

Criteria For Assessing The Total Effect:

Assessment was done by observing clinical improvement in signs and symptoms of the disease as per proforma. All the signs and symptoms were given scores depending upon their severity before and after the treatment. The total effect of the therapy was assessed considering the overall improvement in signs and symptoms. For this purpose, following categories were maintained.

<25 % Relief	Unchanged.
25 - 49 % Relief	Mild improvement.
50 - 74 % Relief	Moderate Improvement.
75-99 % Relief	Marked improvement.
100% Relief	Complete remission.

OBSERVATIONS AND RESULTS

Statistical Analysis:

The Wilcoxon test has been carried out for all to analyze the effect of individual therapy in the both groups. Mann Whitney test has been used to compare the effect of therapies of the two groups all data. The obtained results have been interpreted as:

- ★ Insignificant $P > 0.05$
- ★ Significant $P < 0.05$
- ★ Highly Significant $P < 0.001$

OBSERVATIONS:

In this study, total 30 patients of *Sandhigata Vata* were registered. Out of which, all 30 patients completed the course of the treatment. 36.66% patients were belonging to the age group of 40-50 years, 36.66% patients were belonging to 51-60 years age group and 26.66% patients were belonging to 61-70 years. 80.00% patients were females whereas 20.00% patients were males. Out of 24 female patients, 87.50% patients had menopause, 8.33% patients had regular menstruation and 4.17% patients had irregular menstruation.

Nidana: 23.33% patients had *Nidana* of *Katu/Tikta/Kashaya Rasa* dominant *Aahara*, 6.67% patients had *Ama Dosha*, 63.33% patients had *Sheeta Guna Pradhan Ahar Sevana*, 46.67% patients had habit of *Langhana*, 6.67% patients had habit of *Alpa Bhojana*, 60.0% patients had habit of *Pramit Bhojana*, 40% patients had *Guru guna pradhana ahara sevana* and 20.0% patients had *Snigdha Guna Pradhana*

Ahara Sevana. 63.33% patients had habit of *Atiadhva*, 56.67% patients were doing of *Ratri jagarana*, 36.67% patients were doing *Diwaswapa*, 26.67% patients had history of *Abhighata*, 26.67% patients had habit of *Ati Vyayama*, 10.00% patients had history of *Vegadharana & Atiyuchcha Bhashana* and 3.33% patients had history of *Ati Plavana & Dukha Shayya*. *Chinta* as the *Manasika Hetu* was present in 33.33% patients. Also *Shoka* and *Krodha* found in 3.33% patients and 6.67% patients respectively. 73.33% patients showed evidence of family history of *Sandhivata*. 29 patients (96.67%) had progressive course and only 1 patient (3.33%) had stationary course. All patients had aggravating period in winter time, 86.67% patients had aggravating period in monsoon. Among 30 patients of *Sandhivata*, 100% patients had complained of *Sandhi Shula*, *Sandhi Shotha*, *Akunchana Prasarana Vedana*, *Sandhi Graha* and *Sandhi Sphutana*. No one had complained of *Vata Purna Druti Sparsh*. The present study shows that all the 30 patients (100%) were having *Asthivaha Srotodushiti*, followed by 86.67% having *Rasvaha Srotodushiti*, 60.0% having *Annavaaha Srotodushiti*, 43.33% having *Pranvaha* and *Purishavaha Srotodushiti*, and no patients have found *Udakovaha Strotas*, *Raktavaha Strotas*, *Medovaha Strotas*, *Majjavaha Strotas*, *Mutravaha Strotas*, *Mansvaha* and *Shukravaha Srotodushiti*.

RESULTS

In The Patients of Group A & B:

IN GROUP-A

(Table –1& 2) 15 patients were treated with *Matra Basti* and *Nirgundi Patra Pinda sweda*. It showed that this therapy provided highly significant ($P<0.001$) relief in *Sandhi Shula* (58.22%), *Sandhi Shotha* (72.22%), *Sparsha Asahyata* (82.35%), *Akunchana Prasarana Janya vedana* (65.38%), *Sandhigraha* (75.30%), *Sandhi Sphutana* (50.00%) and also highly significant relief ($P<0.001$) was observed in symptom of *Annavaaha Strotodusti* (87.5%), *Rasavaha Strotodusti* (76.67%), and *Asthivaha Strotodusti* (53.33).

Significant relief ($P<0.05$) was seen in the *Pranvaha Strotodusti Lakshana* (66.7%), *Purishavaha Strotasa* (50.0%).

IN GROUP-B

15 patients were treated only by *Nirgundi Patra Pinda sweda*. This therapy has provided highly significant relief ($P<0.001$) in the *Sandhi Shula* (42.67%), *Sparsha Asahyata* (92.30%), *Akunchana Prasarana Janya Vedana*

(42.10%), *Sandhigraha* (55.93%) and also highly significant relief ($P<0.001$) was observed in symptom of *Annavaaha Strotodusti* (90.0%).

Significant relief ($P<0.05$) was seen in the *Sandhi Shotha* (36.84%), *Sandhi Sphutana* (22.42%) and Insignificant result was seen in *Pranvaha Strotodusti Lakshana* (42.85%), *Asthivaha Strotodusti Lakshana* (14.28%), and *Purishavaha Strotodusti Lakshana* (37.78%).

Comparative Effect Of The Treatment:

The (Table-3) depicts total effect of the therapy.

In Group-A, In Group A, total 15 patients were treated. Out of 15 patients 20.0% patients got marked improvement, 80.00% got moderate improvement while No patient got complete remission.

In Group B, total 15 patients were treated. Out of them 33.33% patients got moderate improvement and 66.67% showed mild improvement. No patient got complete remission.

The (Table-4 &5) obtained difference between the two groups on chief complaints like *Sparsha Asahyata* found statistically Insignificant ($P>0.05$); While in effects on *Strotodusti Lakshana* in both the groups was statistically Insignificant ($P>0.05$). *Sandhi Shotha*, *Akunchana Prasarana Vedana*, and *Sandhi Sphutana* found statistically significant ($P<0.05$) and *Sandhi shula* and *Sandhigraha* found statistically highly significant ($P<0.001$).

Percentage wise Group A showed 66.81% & Group B showed 44.80% result.

DISCUSSION

Sandhigata Vata being a *Vat Vyadhi*⁹ is mainly having *Vata* and *Kapha* predominance. In *Samprapti* of *Sandhigata Vata* vitiated *Vata & Kapha Dosha* produce symptoms like *Sandhi Shula*, *Sandhi Shotha*, *Vat Purna Druti Sparsa*, *Akunchana Prasarana Janya Vedana*, *Sandhigraha* & *Sandhi Sphutana*.

Basti is the best line of treatment. The administered *Basti* reaches the *Pakvashaya* which is the place of *Purishadhara Kala*. *Pakvashaya* and *Asthi* are the main seats of *Vata Dosha*, therefore increased or decreased formation of *Vata* affects all the sites of *Vata* especially *Asthi*. Hence *Purishadhara Kala* is also considered *Asthidhara kala*. So it invariably nourishes the *Asthi* also.

Probable Mode Of Action Of Basti

1. According to *Ayurveda* the *Virya* of ingredients used in the *Basti*, gets absorbed and then through circulation reaches at the side of lesion and relieves the disease. *Acharya Sushruta* has mentioned that *Basti* can be cured *Paitika*, *Kaphaja*, *Raktaja*, *Sansargaja* and *Sannipatika* disorders by using the different ingredients although; it is the best treatment for *Vata Dosh*.
2. *Acharya Charaka* mentioned that *Ashwagandhadi Taila* is used in all types of *Vatavyadhi*. Here, *Ashwagandhadi Tail* was selected for the *Matra Basti*. Contents of *Ashwagandhadi Taila* are *Ashwagandha*, *Bala*, *Atibala*, *Prasarani*, *Go-Dugdha* and *Til Taila*. *Bala*, *Ashwagandha* and *Go-Dugdha* having *Rasayana* properties which helps to pacify *Jarajanya Vata Vyadhi*. So that we can assume that the contents of *Ashwagandhadi Taila* helps to pacify *Shuddha Vata Janit Samprapti* of *Sandhigata Vata*.
3. Most of the drugs of *Ashwagandhadi Taila* have *Rasayan* properties, *Rasayana* is actually that which increases the essence of each *Dhatu* starting from *Rasa*¹⁰. This gradual transformation of *Dhatu* leads to correct *Asthi Dhatu* and *Majja Dhatu Kshaya* and also remove *Srotorodha*. Therefore, degeneration in the *Asthi Dhatu* may not be occurred rapidly. Thus, it could be said that *Ashwagandhadi Taila Matra Basti* slows down the degenerative processes.
4. Contents of *Ashwagandhadi Taila* have predominantly *Madhur Rasa Snigdha*, *Guru* and *Shit Guna* and mainly *Vata Shamaka* properties; these are pacify vitiated *Vata*, and increase of *Shleshaka Kapha* may be taken place and thereby improvement of symptoms is observed.
5. *Basti* has been considered as best treatment for *Vata Vyadhis* as mentioned by *Acharya Charaka* "*Basti Vataharanama*".
6. Content of *Ashwagandhadi Taila* mainly have *Vednasthapana*, *Shothaghna*, *Balya*, *Bruhana*, *Sandhankaraka*, *Keshya*, *Dantya*, *Rasayan*, *Snehan*, *Jarahar* properties that help pacifies symptoms of *Sandhigata Vata*. *Ashwagandhadi Taila* used internally by *Basti*, May be due to this reason Group A showed significant result in *Sandhishula*, *Shandhi Shotha*, *Akunchan Prasarnjanya Vedna*, *Sandhigrah*, and *Sandhi Sphutana* as compare to Group B.
7. Experimental data reveal that *Ashwagandha* and *Bala* works as analgesics as well as anti-inflammatory drug.

8. Thus we can assume that *Basti* with *Ashwagandhadi Taila* given not only symptomatic relief but it help to stop the pathological changes in *Sandhigatavata*.

Probable Mode Of Action Of Patra Pinda Sweda:

1. Heat has a direct effect on blood vessels, causing vasodilatation, particularly in the superficial area where temperature is higher. Higher temperature of blood stimulates thermo receptors that send nerve impulses to the preoptic area of the brain. Strong superficial heating probably reduces pain by producing counter-irritation as per theory of Melzack and Wall.
2. *Swedana* relieves the *Stambha* (Stiffness), *Gaurava* (Heaviness) and *Sheeta* (Coldness) of the body¹¹.
3. In this study, *Nirgundi* leaves were used for *Patra Pinda Sweda*. *Nirgundi* pacifies *Vata & Kapha Dosh* involved in the pathogenesis of the disease by virtue of its *Tikta*, *Katu Rasa*, *Ushna Veerya* and *Vata-Kapha Shamaka* properties. *Nirgundi* act on the pathogenesis due to its *Rasayana*, *Vedanasthapana*, *Shothahara* and *Balya* effect. Moreover, it reduces Pain & Stiffness due to its Anti-inflammatory, Analgesic, Anti-arthritis, and antispasmodic properties¹².
4. *Ashwagandha Taila* was used for frying the *Nirgundi* leaves & for massage prior to *Swedana*. *Ashwagandha Tail* is said to be best in pacifying *Vata Vyadhi* by *Acharya Charaka*.
5. *Patra Pinda Sweda* due to its *Ushna*, *Snigdha*, properties, alleviates *Vata & Kapha Dosh*, thereby relieving Pain & Stiffness.
6. *Swedana* liquefies the *Dosha & Mala* due to its *Ushna-Teekshana* properties, bring it to the part from where it is eliminated which causes the cleansing of the *Srotas* (Body Channels), lightness & maintain the normal temperature¹³.

CONCLUSION

Sandhivata is a *Vata Dosh Pradhana* disorder and *Janu Sandhi* is the most common site for developing *Sandhivata*. On the basis of this study, leading for the occurrence of *Janu Sandhigata Vata* include inappropriate diet, improper lifestyle and stressful working environment. Therapeutically, treatment protocols in both the groups (Group A-*Basti* with *Patra Pinda Sweda* and Group B-*Patra Pinda Sweda*) provided symptomatic relief considerably. However, Group A was found to be

relatively more effective in the management of majority of the symptoms. *Patra Pinda Sweda* provided fast relief but the effect produced, lasted for shorter duration (few days) which indicates the higher recurrence rate in this group. While by incorporating *Patra Pinda Sweda* with *Matra Basti* in group A, the recurrence rate of the disease was lesser relatively, indicating the longer lasting effect. The management of acute cases of *Janu Sandhigata Vata*, *Patra Pinda Sweda* can be incorporated as the treatment of choice and to prolong the effect produced, *Matra Basti* should be considered. On the basis of results obtained, it was seen that treatment group with *Matra Basti & Patra Pinda Sweda* combination was more efficient when compared to group B without *Patra Pinda Sweda*.

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TABLE 1: Effect of Therapy in Subjective Parameters. (Wilcoxon Test)

Variable	Group	Mean		Mean Diff.	% Relief	SD±	SE±	T	P	S
		BT	AT							
<i>Sandhi Shula</i>	A	5.60	2.20	3.40	60.78	0.910	0.235	120.00	<0.0001	HS
	B	4.66	2.73	1.93	41.42	0.258	0.066	120.00	<0.0001	HS
<i>Sandhi Shotha</i>	A	3.40	1.06	2.33	68.62	0.975	0.252	120.00	<0.0001	HS
	B	2.53	1.60	0.93	36.84	0.961	0.248	36.000	<0.007	S
Tenderness	A	2.26	0.40	1.86	82.35	0.833	0.215	105.00	<0.0001	HS
	B	1.73	0.13	1.60	92.30	0.828	0.213	91.000	<0.0001	HS
<i>Akunchana Prasaranajana Vedana</i>	A	5.20	1.80	3.40	65.38	1.056	0.272	120.00	<0.0001	HS
	B	5.06	2.93	2.13	42.10	0.833	0.215	120.00	<0.0001	HS
<i>Sandhigraha</i>	A	5.40	1.33	4.06	75.30	1.100	0.284	120.00	<0.0001	HS
	B	3.93	1.73	2.20	55.93	1.082	0.279	120.00	<0.0001	HS
<i>Sandhi Sphutana</i>	A	5.20	2.60	2.60	50.99	1.298	0.335	105.00	<0.0001	HS
	B	3.86	3.00	0.86	22.41	0.990	0.255	28.00	<0.01	S

TABLE 2: Effect of Therapy on *Srotodushti*. (Wilcoxon Test)

<i>Strotas</i>	Group	Mean		Mean Diff.	% Relief	SD±	SE±	T	P	S
		BT	AT							
<i>Pranvaha Strotas</i>	A	1	0.33	0.67	66.7	0.516	0.212	3.162	0.025	S
	B	1	0.57	0.28	42.85	0.534	0.202	2.12	0.078	IS
<i>Annavaha Strotas</i>	A	1	0.13	0.87	87.5	0.353	0.125	7.0	<0.001	HS
	B	1	0.1	0.9	90	0.316	0.100	9.0	<0.001	HS
<i>Rasavaha Strotas</i>	A	2.27	0.72	1.54	76.67	0.687	0.207	7.45	<0.001	HS
	B	2.2	0.86	1.34	54.99	0.975	0.251	5.29	<0.001	HS
<i>Asthivaha Strotas</i>	A	1.66	0.8	0.86	53.33	0.639	0.165	5.24	<0.001	HS
	B	1.4	0.8	0.6	37.78	0.736	0.190	3.15	0.07	IS
<i>Purishavaha Strotas</i>	A	1.33	0.67	0.66	50.0	0.516	0.210	3.16	0.025	S
	B	1	0.85	0.14	14.28	0.377	0.142	1	0.356	IS

Table 3: Overall Effect of the Treatment

Effect of therapy	GROUP A	%	GROUP B	%
Complete remission (100%)	0	0	0	0
Marked improvement (75-99%)	3	20.00%	0	0
Moderate improvement (50-74%)	12	80.00%	5	33.33%
Mild improvement (25-49%)	0	0	10	66.67%
Unimproved (0-24%)	0	0	0	

Table 4: Intergroup Comparison for Subjective Parameters: (Mann-Whitney test)

Variable	Group	Mean Diff.	SD±	SE±	U	P	S
<i>Sandhi Shula</i>	A	3.40	0.910	0.235	28.000	0.0004	HS
	B	1.93	0.258	0.066			
<i>Sandhi Shotha</i>	A	2.33	0.975	0.252	41.000	0.003	S
	B	0.93	0.961	0.248			
<i>Sparsh Asahyata</i>	A	1.86	0.833	0.215	97.000	0.539	IS
	B	1.60	0.828	0.213			
<i>Akunchana Prasaranajanya Vedana</i>	A	3.40	1.056	0.272	46.000	0.005	S
	B	2.13	0.833	0.215			
<i>Sandhigraha</i>	A	4.06	1.100	0.284	27.000	0.0004	HS
	B	2.20	1.082	0.279			
<i>Sandhi Sphutana</i>	A	2.60	1.298	0.335	38.000	0.002	S
	B	0.86	0.990	0.255			

Table 5: Intergroup Comparison for *Strotodusti*: (Mann-Whitney test)

<i>Strotas</i>	Group	Mean Diff.	SD±	SE±	T	P	S
<i>Pranvaha Strotas</i>	A	0.667	0.516	0.211	1.367	0.199	IS
	B	0.286	0.488	0.184			
<i>Annavaha Strotas</i>	A	0.875	0.354	0.125	0.158	0.876	IS
	B	0.900	0.316	0.100			
<i>Rasavaha Strotas</i>	A	1.545	0.688	0.207	0.616	0.544	IS
	B	1.333	0.978	0.252			
<i>Asthivaha Strotas</i>	A	0.867	0.640	0.165	1.058	0.299	IS
	B	0.600	0.737	0.190			
<i>Purishavaha Strotas</i>	A	0.143	0.378	0.143	2.11	0.059	IS
	B	0.667	0.516	0.211			