



Research Article

EVALUATION OF SHAMPAKADI BASTI AND KSHAR BASTI ALONG WITH PRISTHA BASTI IN TRIK GRAH (ANKYLOSING SPONDYLITIS)

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Article info

Article History:

Received: 01-08-2024

Accepted: 28-08-2024

Published: 15-09-2024

KEYWORDS:

Basti, Trik Grah, Vata Vyadhi, Shampakadi Basti, Kshar Basti, Pristha Basti, Panchakarma, Ankylosing Spondylitis.

ABSTRACT

Basti is considered the most effective treatment for Vata, as well as for Pitta, Kapha, and Rakta (blood) in Samsarga, and Sannipata Doshaas. Within the 'Nanatmaja vyadhi' of Vata, Charaka sutra 20/10 mentions a total of eighty types of Vata Rogas, known as Ashiti Roga. Trik-Asthi is sacrum bone. Sacroiliitis is often the earliest manifestation of ankylosing spondylitis. Ankylosing spondylitis is a complex, and systemic inflammatory rheumatic disease mainly affecting the axial skeleton, with the potential to cause severe debilitation. Fibrosis and ossification of tendon, ligament and capsule insertion at the area of sacroiliac and intervertebral discs are the main characteristics of ankylosing spondylitis. Eighty types of Nanatmaja Vata Vikara caused by Vata. Trik Grah one of the Vata Nanatamaja Vyadhi. Vata-Vyadhies can be considered as a group of such diseases, which Modern Science has given different names. **Methods:** This clinical study was done to "Evaluation of Shampakadi Basti and Kshar Basti along with Pristha Basti in Trik Grah (ankylosing spondylitis)". Basti Karma is known to be the best for Vata disorders thus for this research, open labelled clinical study was done wherein 50 patients were taken in random manner having symptoms of Trik Grah and were divided into two groups, Group A received Shampakadi Basti along with Pristha Basti and Group B received Kshar Basti along with Pristha Basti daily for 8 days. **Results:** Evaluation and the result of both the group exhibited that the improvement provided by group B was better in both sign & symptoms like Sandhi Shool (pain), Sandhi Jadyata (stiffness), Angamarda (fatigue), quality of sleep in comparison to group A. **Conclusion:** As Vata vitiation is a cause Trik Grah, no other treatment modality act as good as Basti. As Ama involvement was there, which was obstructing or vitiating the Samanya Vata action, thus Shampakadi Basti and Kshar Basti along with Pristha Basti showed encouraging results in this disease.

INTRODUCTION

Trik Grah which is one of the Nanatmaja Vyadhi<sup>[1]</sup> of Vata. Ankylosing spondylitis is not mentioned as a separate entity within Ayurvedic classics but can be approached with concept of Vata Vyadhi w.s.r to Trik Grah. When pure Vata or Sama Vata (Vata with Ama) gets vitiated in Trik Pradesh, then symptoms like Sandhi Shool, Sandhi Jadyata, Angamarda in Trik Pradesh. Ancient Acharyas have not entitled Trik Grah as a specific disease but symptoms can be traced in some condition like Kati Shool, Trik Shool, Pristha Shool, Amavata and Vata Vyadhies.

As a disease initiator, Ama is defined as a combination of physiochemical and cellular materials that have been damaged by free radicals, along with toxic substances from both internal and external sources. This accumulation obstructs physiological channels at various levels, which disrupts the absorption and assimilation of vital nutrients. The specific areas where Ama accumulates can differ from one patient to another. At the cellular level, Ama can cause damage in multiple sites; for instance, its presence in the joints can result in arthritis. This cellular damage marks the beginning of the disease process, as the body recognizes this toxic material as a foreign invader, prompting an immune response. This response includes the formation of antibodies, leading to the development of antigen-antibody complexes that can further damage the body.

Trik-Asthi is sacrum bone. Sacroiliitis is often the earliest manifestation of ankylosing spondylitis. Sacroiliac joint is very important as it transfers the

Access this article online	
Quick Response Code	
	<a href="https://doi.org/10.47070/ijapr.v12i8.3369">https://doi.org/10.47070/ijapr.v12i8.3369</a>
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weight and forces between upper body and lower extremities. Ankylosing spondylitis is a sero-negative arthropathy of unknown origin. Sacroiliac joint is the site of earliest manifestation in ankylosing spondylitis. Ankylosing spondylitis is a complex, and systemic inflammatory rheumatic disease mainly affecting the axial skeleton, with the potential to cause severe debilitation. Fibrosis and ossification of tendon, ligament and capsule insertion at the area of sacroiliac and intervertebral discs are the main characteristics of ankylosing spondylitis.

The sign and symptoms of *Trik Grah* can probably be correlated to Ankylosing Spondylitis (AS).

Ankylosing Spondylitis (AS) is a chronic and usually progressive inflammatory disease involving the articulations of the spine and adjacent soft tissues. The sacroiliac joints are always affected. Involvement of the hip and shoulder joints commonly occurs, peripheral joints are affected less frequently. The disease predominantly affects young men and begins most often in the 2<sup>nd</sup> or 3<sup>rd</sup> decade with a male:female ratio about 3:1. A high association has been found between this disorder are the histocompatibility antigen HLA B27. The clinical feature of this disease is distinctly different from those of rheumatoid arthritis. Ankylosing spondylitis is an inflammatory condition. The inflammation may cause some of the vertebrae in lower back of fuse together. It may also affect area such as- Areas where bones attach to tendons and ligaments, cartilage between ribs, hip and shoulder joints, joints between the base of spine and pelvis, eyes, heels. The pathogenesis of AS is not known, but genetic susceptibility and an environmental trigger are probably involved. Strongest association with HLAB-27 is seen, present in >95% of patients. Onset is usually insidious, over months or years, with recurring episodes of low back pain and marked stiffness.

Symptoms are most severe during the early morning and following periods of inactivity, with relief typically occurring through movement. As the disease progress, stiffness tends to increase throughout the spine, and chest expansion often becomes limited. The extent of spinal fusion can vary in some patients, it may lead to significant kyphosis. Approximately 75% of individuals with ankylosing spondylitis (AS) are able to maintain employment and experience a satisfactory quality of life. Even in cases of severe ankylosis, functional limitations may not be significant as long as the spine remains fused in an upright position. However, severe involvement of the hips, knees, or shoulders is associated with a poorer prognosis. Contemporary management strategies encompass patient, family, and genetic counselling, smoking cessation, and a tailored exercise regimen aimed at preserving posture and range of motion. Swimming is regarded as an optimal form of exercise. Treatment

options include physiotherapy, non-steroidal anti-inflammatory drugs (NSAIDs), anti-TNF therapy, or biologics. Slow-acting anti-rheumatic medications such as sulfasalazine, methotrexate, or azathioprine may help manage peripheral joint synovitis, although they do not affect axial joints. Local corticosteroids are utilized for conditions like plantar fasciitis and other enthesopathies, while oral steroids are prescribed for acute uveitis. Surgical interventions, such as total hip arthroplasty, may be necessary in cases of severe restriction in the hips, knees, or shoulders.

Unfortunately, modern system of medicine has no specific definition for it. Even today we don't know the proper etiology, aggravating factors and specific cause of this disease. No specific treatment with strong evidence is available today. Everyone is only doing hit & trial with the patients and just trying to manage pain and disease progression. Ankylosing Spondylitis (AS) not only limits person physically but also disturbs his psychological status, which further worsen the quality of life. Due to changing food habits and lifestyle, now we see large increase in AS cases all over India. Youngsters, in their productive work years, are more prone to AS due to sedentary lifestyle, improper sitting posture, stress and high demanding work life, which in turn worsen the condition further. Patients with such disease comes to us with a hope of miracle and they hope that Ayurveda will do magic for them. So, it's very essential now to develop an effective, economical and practical treatment for ankylosing spondylitis with no or little adverse effects.

Unfortunately, the modern medical system lacks a precise definition for this condition. Even at present, the underlying etiology, aggravating factors, and specific causes of this disease remain unclear. There is no definitive treatment supported by robust evidence available today. Consequently, practitioners often resort to trial and error with patients, primarily focusing on pain management and controlling disease progression. Ankylosing Spondylitis (AS) not only imposes physical limitations on individuals but also adversely affects their psychological well-being, thereby diminishing their overall quality of life. The shift in dietary habits and lifestyle has led to a significant rise in AS cases across India. Young individuals, particularly those in their productive years, are increasingly susceptible to AS due to sedentary lifestyles, poor sitting postures, stress, and demanding work environments, which exacerbate the condition. Patients afflicted with this disease approach us with the hope of miraculous recovery, believing that Ayurveda may provide a solution. Therefore, it is imperative to develop an effective, cost-efficient, and practical treatment for ankylosing spondylitis that minimizes adverse effects.

As *Vata Vyadhi* occur broadly due to two reasons i.e., either by *Dhatu Kshaya* or by *Marg Avarodha*. Thus, coming to management part *Dhatu Kshayajanya Vata Vyadhi* can be treated by controlling vitiation of *Vata* by *Vatashamak* measures and correcting the destruction of *Dhatu*s by *Brumhan Chikitsha*. *Marg Avodhajanya Vata Vyadhi* is treated by removal of obstruction and correcting the direction of flow of *Vata (Vatanulomana)*. For pure *Vata* vitiation, firstly *Snehana* by *Ghee, Tail, Vasa, Majja* is indicated. When proper *Snehana* is done then move to other processes. *Abhyanaga, Anuvasana Basti, Snigdha Nasya, Mamsa Rasa* etc are mentioned for *Snehana* in classics. *Swedana -Sneha Sanyukta Swedan - Nadi, Prastar, Sankar, Parishek, Upnaha, Avagahana* etc. *Drava* as well as *Ruksha Swedan* like *Baluka Pottali Swedan* has been indicated in the classics considering pure or *Sama Vata* pathogenesis. Both internal and external *Snehana and Swedana* therapies are mentioned. *Mridu Virechana* with *Sneha* is mentioned. *Vatanuloman* by *Snigdha, Usna Amla Lavana* etc is given. *Niruha Basti* with *Deepaniya* and *Pachaniya* drugs is indicated. *Nasya* by *Vatashamak* oil, *Rasayan Payoga* like *Shilajeet*, various *Gugulu* preparations, *Chywanprash* etc is used, *Satva Avajaya Chikitsha* is done as described earlier in *Nidana*, psychology play an important role in this disease. So, practice of *Achara Rasayan* and removal of mental stress factors are indicated.

*Basti* by virtue of its versatility and impact is called *Ardh Chikitsha*. *Basti* is considered best among all *Panchkarmas* in pacifying all types of *Vata Rogas* of *Shampakadi Basti*<sup>[2]</sup> and *Kshar Basti* along with *Pristha Basti* is mentioned as an important treatment modality in *Vata Vyadhi* management. Thus, in this study of *Shampakadi Basti* and *Kshar Basti*<sup>[3]</sup> along with *Pristha Basti* and with *Prasarini Taila*. *Tail Anuvasana Basti* is given in modified *Yoga Basti* schedule for treatment of this disease.

## AIM AND OBJECTIVES

1. To evaluate the effect of *Shampakadi Basti* along with *Pristha Basti (Prasarini Taila)* in *Trik Grah*.
2. To evaluate the effect of *Kshar Basti* along with *Pristha Basti (Prasarini Taila)* in *Trik Grah*.
3. To compare the effect of *Shampakadi Basti* and *Kshar Basti* in the management of *Trik Grah*.

## Ethical Clearance

The study topic along with the case Performa was placed before the Institutional Ethical Committee of Patanjali Bhartiya Ayurvedic Evam Anusandhan Sasthan, Haridwar, Uttarakhand. The aims and objectives, methodology and expected outcome of the present study were explained to the committee. The committee which consists of research personalities, social activists and legal experts and departmental heads has discussed the various ethical aspect of the study and finally gave the ethical clearance to conduct

the study. Study was started only getting Ethical Clearance from Institutional Ethical Committee and CTRI registration.

## Informed Consent

The present study includes a sample size of 50 patients of *Trik Grah (Ankylosing Spondylitis)* the OPD and IPD of Patanjali Bhartiya Ayurvedic Evam Anusandhan Sasthan, Haridwar, Uttarakhand. All of them were made to understand about the study and informed consent was obtained. Only after getting the informed consent, they were included in the study. The consent form is attached along with case performa in the appendix.

## Methods of Collection of Data

- ❖ A clinical study of patients attending the OPD was made and patients fulfilling the criteria of diagnosis as per the patient's case formats were selected for the study.
- ❖ A clinical evaluation of patients was done by collection of data through information obtained by history, physical examination and routine blood investigations.
- ❖ Review of literature was conducted from books, Authentic Research journals, websites and Digital Publication etc.

**Sample Size:** 50 patients

**Type of study:** Open labelled clinical study

**Level of study:** OPD & IPD level

**Period of study:** 18 months

**Duration of Treatment:** 8 days

## Method of Treatment

- **For 8 days:** *Shampakadi Basti* along with *Pristha Basti* in *Yoga Basti* schedule. 9<sup>th</sup> day onwards *Parihara Kala* for 16 days.
- **For 8 days:** *Kshar Basti* along with *Pristha Basti* in *Yoga Basti* schedule. 9<sup>th</sup> day onwards *Parihara Kala* for 16 days.

## Selection Drug

### Shampakadi Basti

Dravya	Quantity
Madhu	96ml
Saidhava	8gm
Tail	144ml
Kalka	48gm
Kwatha	192ml
Ushna jala	128ml

**Kwath Dravya-** *Shmpaka (Aragvadha), Urubuka (Eranda), Varsabhu (Punarnava), Asvagandha, Sati, Lagu Panchmula, Bala, Rasna, Guduci, Devadaru, Madana Phala.*

**Kalka Dravya-** Pippali, Nagarmotha, Hapusha, Misi, Indrayava, Priyangu, Vaca (Ugra), Mulethi, Rasanjana.

### Kshar Basti

Dravya	Quantity
Saindhav Lavan	10gm
Guda Paka (jaggery)	80gm
Satpuspa	10 gm
Amlika	80gm
Gomutra Arka	120ml
Ushna jala	200ml

### Collection and authentication of drugs

The drugs used for procedures were obtained from Divya Pharmacy of Patanjali Bhartiya Ayurvedigyan Evam Anusandhan Sansthan, Haridwar, Uttarakhand.

### Diagnostic Criteria

Patients were thoroughly examined; the points of history taking and physical examination were performed. Detailed history pertaining to mode of onset, and other classical symptoms of *Trik Grah* (Ankylosing Spondylitis), family history, *Ashtavidha Pareeksha*, *Dashvidha Pareeksha* and objective findings were noted and had taken for the study.

### Research Design

In the clinical study with pre-test and post-test design where in a minimum of 50 patients suffering from *Trik Grah* selected irrespective of their gender, caste or creed. The parameters of sign and symptoms analyzed statistically. Subjects were administered *Shampakadi Basti* in *Yoga Basti* schedule around 576ml and *Anuvasana Basti* around 72ml of *Prasarini Taila* and *Kshar Basti* in *Yoga Basti* schedule around 576ml (*Madhyam Matra*) and *Anuvasana Basti* around 72ml of *Prasarini Taila*.

### Grouping

The selected patients randomly grouped into 2 groups comprising 25 patients each.

#### 1- Group (A) Shampakadi Basti

1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	7th Day	8th Day
A	A	N	A	N	A	N	A

Note: A- Anuvasana Basti N- Niruha Basti

#### 2- Group B - Kshar Basti

1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	7th Day	8th Day
A	A	N	A	N	A	N	A

Note: A- Anuvasana Basti N- Niruha Basti

### Method of Preparation of Shampakadi Basti

192gm of coarse powder of *Kwath* drugs of *Shampakadi Basti* was boiled with 768ml of water in the steel pot to reduce it by one fourth i.e., 192ml. The

prepared *Kwath* was filtered. In a sizable *Khalva*, 96ml honey was titrated well with 8gm *Saindhava*. To this mixture, 144ml *Prasarini Taila* was added gradually and mixed thoroughly. After mixing 48gm of *Kalka* in it, it was stirred well. At last, 192ml *Shampakadi Kwath* and 200ml *Ushna Jala* was added and whole mixture was stirred well utilizing churning stick until it became homogeneous. Prepared *Basti* was again filtered.

### Method of Preparation of Kshara Basti

Jaggery had been dissolved in water and boiled till the required amount of water is evaporated and the mixture turns into *Gudapaka* (80gm), *Saindhava Lavana* (10gm) and *Gudapaka* will be churned thoroughly in a mortar and pestle. After that, *Amlika* (80gm) mixed and squeezed well in hot water and used as *Kalka*. This *Kalka* was mixed with *Satpuspa* (10gm) and is then added in the above mixture and churning is to be continued.

Finally, distilled cow's urine *Gomutra Arka* (120ml) lukewarm water (120ml + 200ml) 320ml was added very slowly while the churning process continues. Finally, the *Basti Dravya* had been filtered and used for administration.

### Dose of Medicine

- Shampakadi Basti* 576ml
- Kshar Basti* 576ml

**Route of administration:** Per-Rectal

### Pristha Basti

*Pristha Basti* common for both groups.

### Time and duration

30 minutes daily (till *Samyak Swedan Lakshan*).

The course of treatment continued for 8 days.

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### Criteria of Selection of Patients

#### a. Inclusion Criteria

- Age 18- 60 years
- Either sex
- Patients with classical features of *Trik Grah*.
- Diagnosed case of Ankylosing Spondylitis (AS).
- Patients fit for *Basti*.

#### b. Exclusion Criteria

- Sciatica
- Tuberculosis (Tubercular sacroiliitis, Potts Spine etc.)
- Pregnancy and lactating mothers.
- Patients who are unfit for *Basti karma*.
- Any major systemic disorder like chronic renal failure, liver cirrhosis and carcinoma.
- Coronary artery disease, diabetes, etc.

**Subjective Parameters**

**Sandhi Shool (Pain In Axial Skeleton & Peripheral Joint Pain)**

Parameters	Gradation
No pain	0
Mild pain but no difficulty in walking	1
Moderate pain and slight difficulty in walking	2
Sever pain with sever difficulty in walking	3

**Sandhi Jadyata or Stambhta (Stiffness)**

Parameters	Gradation
No stiffness	0
Sometime for 5-10 minutes	1
Daily for 10-30 minutes	2
Daily for 30-60 minutes/more than 1 hrs	3

**Angamard (Fatigue)**

Parameters	Gradation
No Angamarda	0
Occasional Angamarda but patient is able to do usual work	1
Continuous Angamarda but patient is able to do usual work	2
Continuous Angamarda which hamper's routine work	3
Patient is unable to do any work	4

**Quality of Sleep**

Parameters	Gradation
Sound sleep	0
Can sleep sound, even after interruption	1
Can't sleep properly after interruption due to pain	2

**Objective Parameters**

1. ESR
2. CRP
3. Range of Movements (BASMI)

0	1	2	3	4	5	6	7	8	9	10

**Lateral lumbar flexion (cm)**

> 20	18-19.9	15.9-17.9	13.8-15.8	11.7-13.7	9.6-11.6	7.5-9.5	5.4-7.4	3.3-5.3	1.2-3.2	<1.2
0	1	2	3	4	5	6	7	8	9	10
<b>Mean of right/left</b>										

**Tragus-to-wall distance (cm)**

<10	10-12.9	13-15.9	16-18.9	19-21.9	22-24.9	25-27.9	28-30.9	31-33.9	34-36.9	=>37
0	1	2	3	4	5	6	7	8	9	10
<b>Mean of right/left</b>										

**Lumbar flexion (modified Schober) (cm)**

>7.0	6.4-7.0	5.7-6.3	5.0-5.6	4.3-4.9	3.6-4.2	2.9-3.5	2.2-2.8	1.5-2.1	0.8-1.4	=<0.7
0	1	2	3	4	5	6	7	8	9	10

**Maximal intermalleolar distance (cm)**

=>120	110-119.9	100-109.9	90-99.9	80-89.9	70-79.9	60-69.9	50-59.9	40-49.9	30-39.9	<30
0	1	2	3	4	5	6	7	8	9	10

**Cervical rotation (cm)**

=>85	76.6-84.9	68.1-76.5	59.6-68	51.1-59.5	42.6-51	34.1-42.5	25.6-34	17.1-25.5	8.6-17	=>8.5
0	1	2	3	4	5	6	7	8	9	10

**Mean of right/left**

**Symptoms wise Observation of Patients**

1. *Sandhi Shoola* (pain in axial skeleton and peripheral joints)
2. *Sandhi Jadyata or Stambha* (stiffness)
3. *Angamard* (fatigue)
4. *Vyakalyata* (disability)
5. *Nidranash* (lack of sleep)

and symptoms of *Trik Grah*. Physical examination of each patient was performed. All the patients were examined before, during and after the trial, according to the case sheet format given in the annexure.

The scoring of sign and symptoms were recorded and presented as-

**Discussion on Observation of Clinical Study and Results**

The research study was carried out in 50 patients irrespective of any socio-economic status; both sexes and all ethnic origins, fulfilling the criteria of diagnosis and inclusive criteria were included in the study. All patients were diagnosed on the basis of signs

**Discussion on Observation of Clinical Study and Results**

**Subjective Parameters**

In patients of AS *Sandhi shool* (pain), *Sandhi jadyata* (stiffness), *Angamarda* (fatigue), quality of sleep was analysed.

Group A	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
<i>Sandhi Shool</i> (pain)	2.84	1.48	3.00	2.00	0.47	1.08	-3.994 <sup>b</sup>	0.000065	47.89	HS
<i>Sandhi Jadyata</i> (stiffness)	2.80	1.44	3.00	2.00	0.50	1.00	-4.102 <sup>b</sup>	0.000041	48.57	HS
<i>Angamarda</i> (fatigue)	3.28	1.44	4.00	1.00	1.14	1.53	-3.857 <sup>b</sup>	0.000115	56.10	HS
Quality of sleep	1.68	0.40	2.00	0.00	0.75	0.71	-3.947 <sup>b</sup>	0.000079	76.19	HS

Group B	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
<i>Sandhi Shool</i> (pain)	2.64	0.84	3.00	0.00	0.70	1.11	-4.187 <sup>b</sup>	0.000028	68.18	HS
<i>Sandhi Jadyata</i> (stiffness)	2.80	0.88	3.00	0.00	0.50	1.17	-4.058 <sup>b</sup>	0.000049	68.57	HS
<i>Angamarda</i> (fatigue)	3.20	0.88	4.00	0.00	1.38	1.17	-4.061 <sup>b</sup>	0.000049	72.50	HS
Quality of Sleep	1.28	0.24	2.00	0.00	1.14	0.77	-3.002 <sup>b</sup>	0.002686	81.25	HS

**Sandhi Shool (Pain)**

In Group A the mean *Sandhi Shool* (pain) score before treatment was 2.84 with SD 0.47 and after treatment it was reduced to 1.48 with SD of 1.08. Before treatment median was 3.00 and after treatment median was 2.00. It was statistically significant with P value 0.000065 (less than 0.05) and *Sandhi Shool* (pain) reduction was 47.89%.

Before treatment median was 3.00 and after treatment median was 0.00. It was statistically significant with P value 0.000028 (less than 0.05) and *Sandhi Shool* (pain) reduction was 68.18%.

Wilcoxon Signed Rank Test is carried out to test efficacy in Group A.

Wilcoxon Signed Rank Test is carried out to test efficacy in Group B.

In Group B the mean *Sandhi Shool* (pain) score before treatment was 2.64 with SD 0.70 and after treatment it was reduced to 0.84 with SD of 1.11.

*Basti* ingredients combining scrap the *Ama* and digest it thus removing the obstruction and does *Vatanulomana* and thus treat *Ghor Vata Dosha*. Because of *Vatahar* properties of both the *Basti*, it relieves stubborn pain.

**Sandhi Jadyata (Stiffness)**

In Group A the mean *Sadhi Jadyata* score before treatment was 2.80 with SD 0.50 and after treatment it was reduced to 1.44 with SD of 1.00 before treatment median was 3.00 and after treatment median was 2.00. It was statistically significant with P value 0.000041 (less than 0.05) and reduction in stiffness was 48.57%. In Group B the mean *Sadhi Jadyata* score before treatment was 2.80 with SD 0.50 and after treatment it was reduced to 0.88 with SD of 1.17 before treatment median was 3.00 and after treatment median was 0.00. It was statistically significant with P value 0.000049 (less than 0.05) and reduction in stiffness was 68.57%. Due to *Deepaniya, Lekhaniya Tikshna Ushna Kshara Kaphahagna* properties, *Amapachana* and *Vatasamana* take place due to which patient felt relieve in heaviness and stiffness in body.

**Angamarda (Fatigue)**

In Group A the mean *Angamard* score before treatment was 3.28 with SD 1.14 and after treatment it was reduced to 1.44 with SD of 1.53 before treatment median was 4.00 and after treatment median was 1.00. It was statistically significant with P value 0.000115 (less than 0.05) and reduction in fatigue was 56.10%.

In Group B the mean *Angamard* score before treatment was 3.20 with SD 1.38 and after treatment it was reduced to 0.88 with SD of 1.17 before treatment median was 4.00 and after treatment median was 0.00.

It was statistically significant with P value 0.000049 (less than 0.05) and reduction in fatigue was 72.50%.

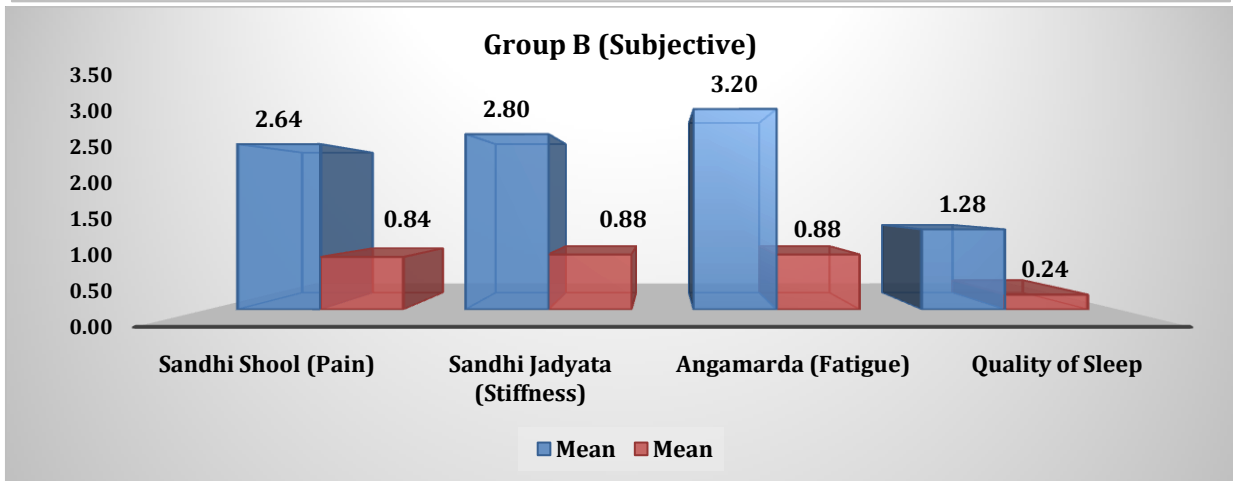
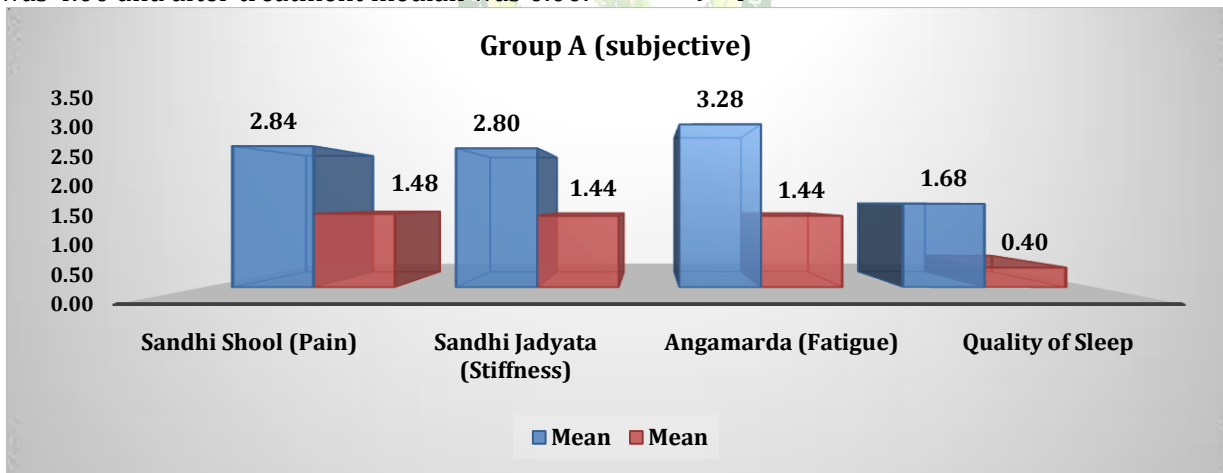
Due to *Vata Kaphahar* properties and digestion and removal of *Ama*, there was reduction in symptoms of disease and also patient was able to sleep at night undisturbed without pain and stiffness. As no inflammatory processes were running, he felt fresh and energetic in the morning without any fatigue.

**Quality of Sleep**

In Group A the mean quality of sleep score before treatment was 1.68 SD 0.75 and after treatment it was reduced to 0.40 with SD of 0.71 before treatment median was 2.00 and after treatment median was 0.00. It was statistically significant with P value 0.000079 (less than 0.05) and effect on quality of sleep score was 76.19%.

In Group B the mean quality of sleep score before treatment was 1.28 SD 1.14 and after treatment it was reduced to 0.24 with SD of 0.77 before treatment median was 2.00 and after treatment median was 0.00. It was statistically significant with P value 0.002686 (less than 0.05) and effect on quality of sleep score was 81.25%.

Due to relieve in severe pain and stiffness and also because of new hope, patient showed mark improvement in quality of sleep. He also felt stress free and relaxed because of treatment and improvement in his symptoms.



**Group A & B Comparison (Subjective Parameters)**

Variable	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	P-Value	Result
Sandhi shool (Pain)	Group A	25	21.74	543.50	243.500	0.016	Sig
	Group B	25	29.26	731.50			
	Total	50					
Sandhi jadyata (Stiffness)	Group A	25	21.00	525.00	225.000	0.008	Sig
	Group B	25	30.00	750.00			
	Total	50					
Angamarda (fatigue)	Group A	25	22.08	552.00	252.000	0.023	Sig
	Group B	25	28.92	723.00			
	Total	50					
Quality of sleep	Group A	25	21.72	543.00	218.000	0.005	Sig
	Group B	25	29.28	732.00			
	Total	50					

Mann Whitney U Test is carried out for comparison between Group A and Group B. From above table, we can observe that P-Value for almost parameters is less than 0.05. Hence, we can conclude that, there is significant difference between Group A and Group B.

Further we can observe that, mean rank for Group B is greater than Group A. Hence, we can conclude that, effect observed in Group B is better than Group A.

Group B- *Kshara Basti* exhibits a significant influence of *Deepana karma*. The properties of *Deepana* and *Pachana Dravya*, characterized by a predominance of the *Agni* and *Vayu Mahabhoota*, as well as their *Ushna*, *Tikshna*, and *Laghu* qualities, enhance the *Agni*, thereby facilitating the digestion of *Ama*. The presence of *Mandagni* and *Ama* is a primary

contributing factor to the condition known as *Trik Grah*. Consequently, the application of *Deepana* and *Pachana Karma* plays a crucial role in disrupting the pathogenesis of this disease. It was able to remove blockage or *Sanga* and thus cure pain and heaviness in the body. It removed *Avarana* of *Vata* + digest *Ama* by correcting *Agni* + does *Vatanulomana* and also pacify pure *Vata* by its drugs and proved to be good in new cases of AS and where *Ama* is causing more trouble whereas *Shampakadi Basti* is a combination of *Amapachana* + removes any obstruction in *Vata* flow due to *Ama*, *Kapha*, *Meda* and proves good in older cases too i.e., in chronic *Vata* disease.

**Discussion on Results of Objective Parameters**

In patients of Ankylosing Spondylitis -BASMI scores, ESR & CRP was analyzed before and after treatment.

Group A		Mean	N	SD	SE	t- Value	P- Value	% change	Result
BASMI	BT	3.70	25	2.08	0.42	2.392	0.025	4.75	Sig
	AT	3.53	25	2.17	0.43				
ESR	BT	54.40	25	44.18	8.84	1.019	0.318	10.48	NS
	AT	48.70	25	46.94	9.39				
CRP	BT	29.88	25	28.37	5.67	0.351	0.729	3.40	NS
	AT	28.86	25	27.04	5.41				

Group B		Mean	N	SD	SE	t- Value	P- Value	% change	Result
BASMI	BT	3.70	25	2.12	0.42	2.493	0.020	2.60	Sig
	AT	3.60	25	2.15	0.43				
ESR	BT	46.48	25	37.43	7.49	1.074	0.293	17.04	NS
	AT	38.56	25	35.75	7.15				
CRP	BT	22.58	25	23.58	4.72	1.381	0.180	19.29	NS
	AT	18.23	25	22.04	4.41				



**BASMI**

In Group A the mean BASMI score before treatment was 3.70 with SD 2.08, SE 0.42 and after treatment it was reduced to 3.53 with SD of 2.17, SE 0.43. It was statistically significant with P value 0.025 (less than 0.05) and effect on BASMI score was 4.75%.

Paired t- Test was carried out to test efficacy in Group A.

In Group B the mean BASMI score before treatment was 3.70 with SD 2.12, SE 0.42 and after treatment it was reduced to 3.60 with SD of 2.15, SE 0.43. It was statistically significant with P value 0.020 (less than 0.05) and effect on BASMI score was 2.60%.

Paired t- Test was carried out to test efficacy in Group B.

As pain and stiffness subsides significantly by *Basti*, patient was able to stretch and rotate his body more freely and to more extend than before. Hence, his range of different movement increases and so BASMI Score results. This happens because of anti inflammatory effect of both the *Basti*. It pacifies *Vata*, *Kapha* and digest *Ama*.

**ESR**

In Group A the mean ESR before treatment was 54.40 with SD 44.18, SE 8.84 and after treatment it was

reduced to 48.70 with SD of 46.94, SE 9.39. It was statistically significant with P value 0.318 (less than 0.05) and effect on ESR was 10.48%.

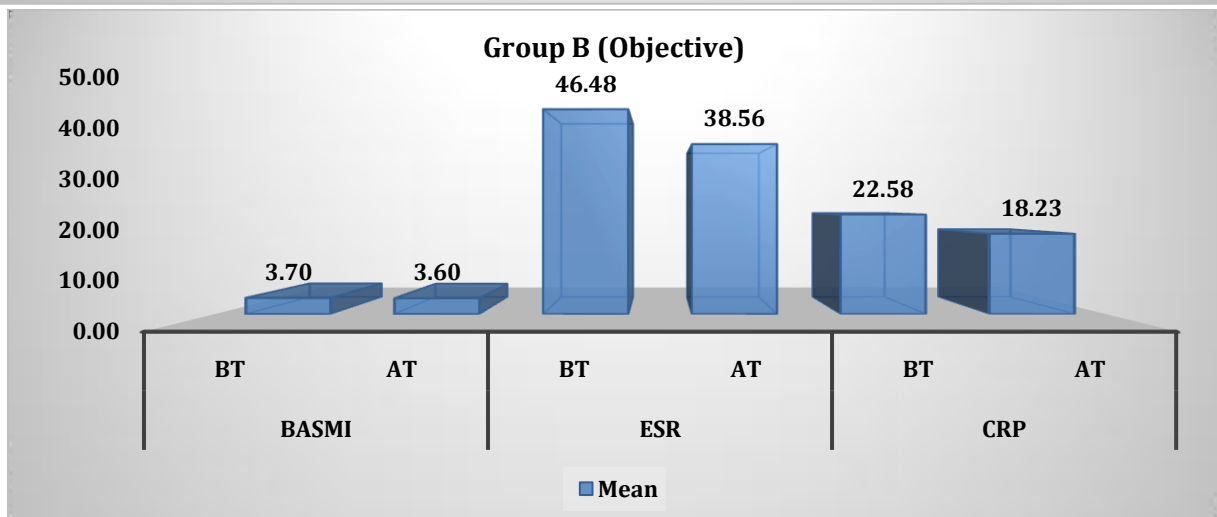
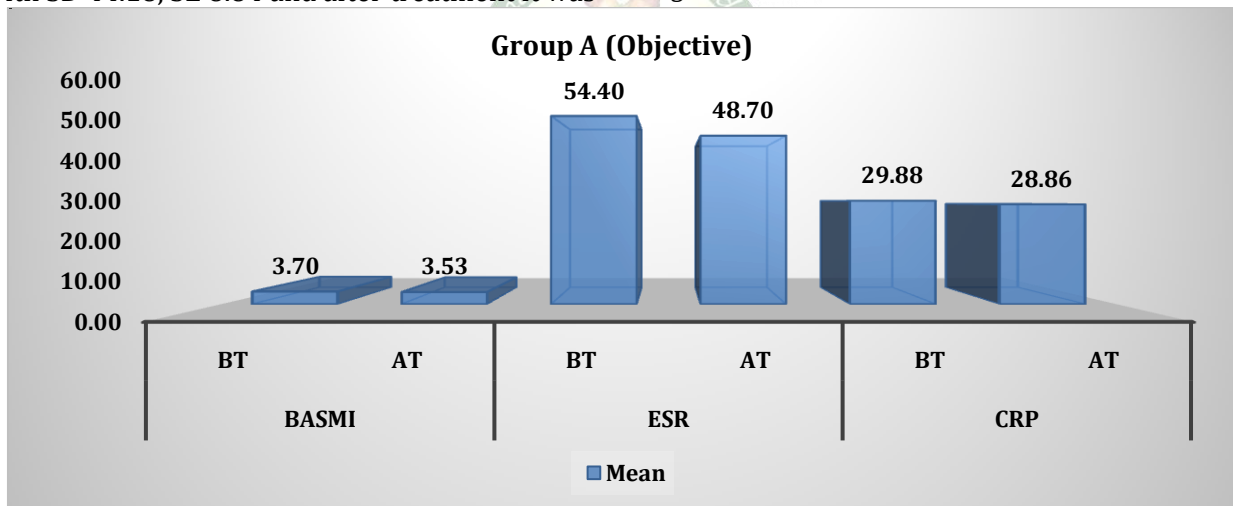
In Group B the mean ESR before treatment was 46.48 with SD 37.43, SE 7.49 and after treatment it was reduced to 38.56 with SD of 35.75, SE 7.15. It was statistically significant with P value 0.0293 (less than 0.05) and effect on ESR was 17.04%.

**CRP**

In Group A the mean CRP before treatment was 29.88 with SD 28.37, SE 5.67 and after treatment it was reduced to 28.86 with SD of 27.04, SE 5.41. It was statistically significant with P value 0.729 (less than 0.05) and effect on CRP was 3.40%.

In Group B the mean CRP before treatment was 22.58 with SD 23.58, SE 4.72 and after treatment it was reduced to 18.23 with SD of 22.04, SE 4.41. It was statistically significant with P value 0.180 (less than 0.05) and effect on CRP was 19.29%.

As vitiated *Vata* was subsided significantly there was significant reduction in these inflammatory markers, thus showing reduction in ongoing inflammatory process in the body due to *Samprapti Vighatan* of the disease.



**Group A & B Comparison (Objective Parameters)**

Variable	Group	N	Mean	SD	SE	t- Value	P- Value
BASMI	Group A	25	0.18	0.43	0.09	0.847	0.401
	Group B	25	0.10	0.19	0.04		
ESR	Group A	25	5.70	27.97	5.59	-0.240	0.811
	Group B	25	7.92	36.86	7.37		
CRP	Group A	25	1.02	14.49	2.90	-0.780	0.439
	Group B	25	4.36	15.78	3.16		

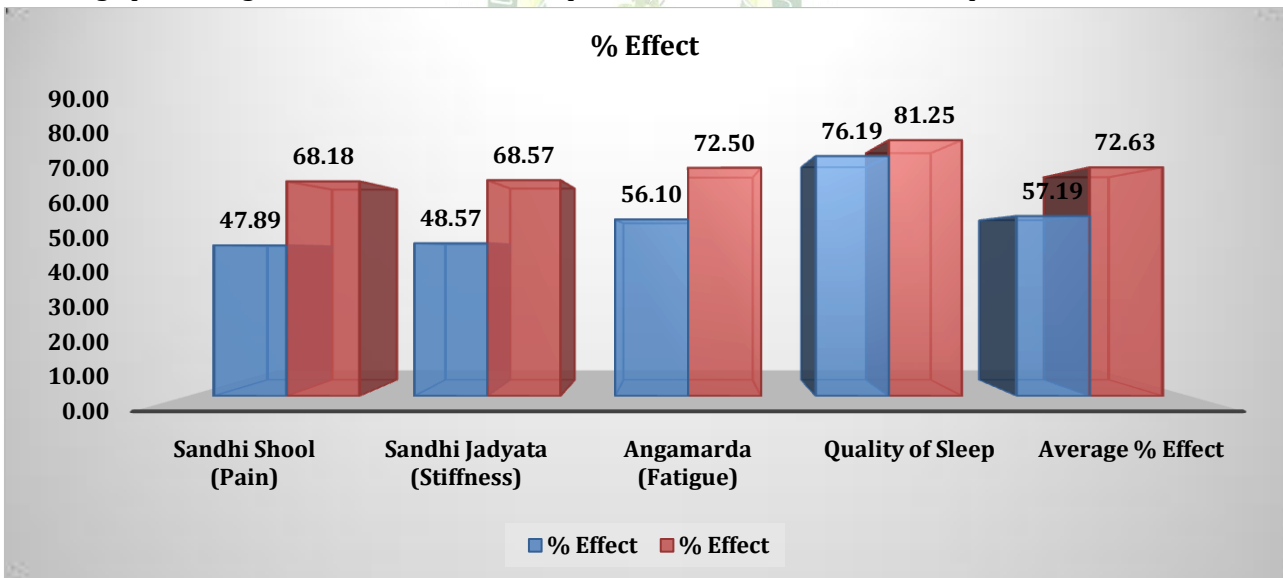
Unpaired t-test is carried out for comparison between Group A and Group B. We can observe that P-Value is greater than 0.05. Hence, we can conclude that, there is no significant difference between Group A and Group B.

**EFFECT**

Parameters	% Effect	
	Group A	Group B
<i>Sandhi Shool</i> (Pain)	47.89	68.18
<i>Sandhi Jadyata</i> (Stiffness)	48.57	68.57
<i>Angamarda</i> (Fatigue)	56.10	72.50
Quality of sleep	76.19	81.25
Average % effect	57.19	72.63

It can be observe that, for *Sandhi shool*, effect observed in Group A was about 47.89% that of in Group b was 68.18%. For *Sandhi Jadyata* effect observed in Group A was about 48.57% that of in Group B was 68.57%. For *Angamarda* effect observed in Group A was about 56.10% that of in Group B was 72.50%. For quality of sleep effect observed in Group A was 76.19% that of in Group B was 81.25%.

Overall average percentage effect observed in Group A was about 57.19% and Group B was 72.63%.

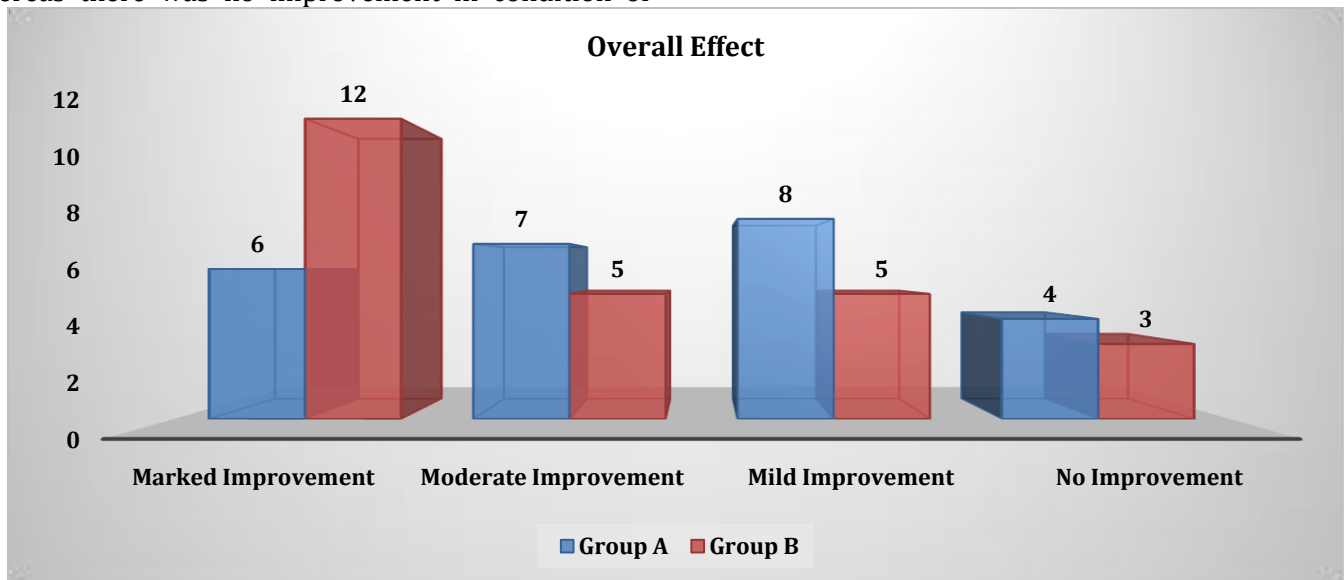


**Overall Effect**

Overall Effect	Group A		Group B	
	N	%	N	%
Marked Improvement	6	24.00%	12	48.00%
Moderate Improvement	7	28.00%	5	20.00%
Mild Improvement	8	32.00%	5	20.00%
No Improvement	4	16.00%	3	12.00%
TOTAL	25	100.00%	25	100.00%

From the present study, it can be concluded that in Group A 32.00% patients showed mild improvement, 28.00% patients showed moderate improvement, 24.00% patients marked improvement, whereas there was no improvement in condition of

16.00% patients. In Group B 48.00% patients showed marked improvement, 20.00% patients showed moderated improvement, 20.00% patients mild improvement and no improvement in 12.00% patients.



### Summary

At the end of discussion drawn a series of "Summary and Conclusions" concerning the details of work done, clinical evaluation performed and results obtained.

- ❖ Total 50 patients of *Trik Grah* were selected for the study and randomly 25 patients were selected for each of the two groups. Group A were treated by giving *Shampakadi Basti* along with *Pristha Basti* for period of 8 days in *Yoga Basti* schedule with follow up after completion of Three month. Group B patients were given *Kshar Basti* along with *Pristha Basti* for period of 8 days in *Yoga Basti* Schedule with follow up after completion of three month.
- ❖ After the *Basti* intervention for 8 days with completion of follow up after three month in patients of *Trik Grah* (Ankylosing Spondylitis); in Group A, the percentage relief over subjective symptoms were- *Sandhi Shool* (pain) 47.89%, *Sadhi Jadyata* (stiffness) 48.57%, *Angamard* 56.10%, quality of sleep score was 76.19%. In Group B the percentage relief over subjective symptoms were- *Sandhi Shool* (pain) 68.18%, *Sadhi Jadyata* (stiffness) 68.57%, *Angamard* 72.50%, quality of sleep score was 81.25%.
- ❖ Among the objective parameters, in a Group A the percentage relief over various investigations were BASMI 4.75%, ESR 10.48%, CRP 3.40%, whereas Group B the percentage relief over various investigations were- BASMI 2.60%, ESR 17.04%, CRP 19.29%.
- ❖ So, from above discussion, it can be concluded that Group B (*Kshar Basti* along with *Pristha Basti*) shows positive and encouraging results as

compared to Group A (*Shampakadi Basti* along with *Pristha Basti*).

### Effect of Therapy in Group A

After the *Basti* intervention for 8 days with completion of follow up after three month in patients of *Trik Grah*; in Group A, the percentage relief over subjective symptoms were- *Sandhi Shool* (Pain) 47.89%, *Sadhi Jadyata* (stiffness) 48.57%, *Angamard* 56.10%, quality of sleep score was 76.19. Wilcoxon Signed Rank Test to test efficacy. From above table, we can observe that, P-Value for all parameters is less than 0.001. Hence, we can conclude that, effect observed in Group A is highly significant.

- ❖ Among the objective parameters, in a Group A the percentage relief over various investigations were BASMI 4.75%, ESR 10.48%, CRP 3.40%, paired t-test is carried out to test significance in Group A. From above table, we can observe that, P- Value for BASMI is less than 0.05. Hence, we can conclude that, there is significant change observed in BASMI whereas, no significant change observed in ESR and CRP (P-Value > 0.05).

### Effect of Therapy in Group B

- ❖ In Group B the percentage relief over subjective symptom were- *Sandhi Shool* (pain) 68.18 %, *Sadhi Jadyata* (stiffness) 68.57%, *Angamard* 72.50%, quality of sleep score was 81.25%. Wilcoxon Signed Rank Test to test efficacy. From above table, we can observe that, P-Value for all parameters is less than 0.001. Hence, we can conclude that, effect observed in Group B is highly significant.

- ❖ Whereas Group B the percentage relief over various investigations were- BASMI 2.60%, ESR 17.04%, CRP 19.29%, paired t-test is carried out to test significance in Group B. From above table, we can observe that, P- Value for BASMI is less than 0.05. Hence, we can conclude that, there is significant change observed in BASMI whereas, no significant change observed in ESR and CRP (P-Value > 0.05).

## CONCLUSION

- ❖ The condition known as *Trik Grah* presents significant challenges in treatment due to its chronic nature, associated complications, and the resulting morbidity.
- ❖ After the conclusion of the medieval period, this illness began to assert its dominance and is currently recognized as a common and distressing disease in today's world.
- ❖ *Trik Grah* is a disease characterized by a predominance of *Dushya*.
- ❖ The primary factors contributing to the development of the *Vyadhi* are *Kapha*, *Vata*, and *Agnimandya*.
- ❖ It has been noted that males are more frequently affected, as the increased obligations related to domestic duties and everyday family pressures can contribute to the aggravation of *Vata Prakopa* and *Agnimandya*, thereby causing *Trik Grah* in this demographic.
- ❖ The middle age group is particularly at risk due to a gradual decrease in *Vyadhikshmatva* and the accumulation of *Dosha* during this phase of life, which may contribute to the development of *Trik Grah*. The *Vata Dosha* which is a key predisposing factor in this disease process becomes vitiated.
- ❖ The service worker is more susceptible to health issues due to prolonged periods of standing, which can lead to sleep deprivation, unbalanced dietary habits, and reduced physical activity. These factors contribute to an increase in *Kapha dosha* and result

in *Mandagni* a significant element in the development of *Trik Grah*.

- ❖ Individuals belonging to the middle socio-economic age groups are more susceptible to health issues due to their busy lifestyles focused on earning a livelihood. This constant engagement often leads to increased stress levels, making it challenging for them to adhere to a healthy diet and daily routines (*Dinacharya*). Consequently, this neglect can result in the vitiation of *Doshas*, potentially triggering the *Trik Grah*.
- ❖ The majority of students residing in hostels or as paying guests while pursuing higher education often fail to maintain a proper and healthy routine. Additionally, the significance of a balanced diet is frequently overlooked due to the pressures associated with academic studies. These circumstances contribute to an imbalance of *Doshas*, particularly *Vata Dosha*, resulting in *Agnimandya* and the accumulation of *Ama*.

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### Cite this article as:

Mohit Bagwari, Piyush Gupta, Praphull Goyal, Ketan Mahajan. Evaluation of Shampakadi Basti and Kshar Basti along with Pristha Basti in Triak Grah (Ankylosing Spondylitis). International Journal of Ayurveda and Pharma Research. 2024;12(8):1-12.

<https://doi.org/10.47070/ijapr.v12i8.3369>

Source of support: Nil, Conflict of interest: None Declared

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