

A CLINICAL STUDY TO EVALUATE THE EFFICACY OF *AJMODADI VATI* AND KNEE TRACTION IN THE MANAGEMENT OF *JANU SANDHIGATA VATA W.S.R. TO OSTEOARTHRITIS OF KNEE JOINT*

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ABSTRACT

Objectives To evaluate the efficacy of *Ajmodadi Vati* and Knee Traction in the management of *Janu Sandhigata Vata* (Primary Osteoarthritis of Knee joint). 30 clinically diagnosed cases of *Sandhigata Vata*, age above 40, From O.P.D. / I.P.D. of N.I.A. *Shalya Tantra* Department were randomly assigned to three groups. Radiological investigation and vat scale were administered on all the participants. 1st group was subjected to take *Ajmodadi Vati* and 2nd group was subjected to have traction treatment and 3rd group was subjected to have both *Ajmodadi Vati* and traction treatment. In Group C (Combined therapy of *Ajmodadi Vati* and Knee Traction) results were found very significant (in case of pain) when combination of both above mentioned modalities was applied to the patients, the relief in pain and tenderness was seen in this group. After treatment the statistical analysis concluded that Group C showed better results in comparison to single regimen.

Key words: *Janu Sandhigata vata*, *Ajmodadi Vati*, Osteoarthritis, Traction, pain.

INTRODUCTION

Osteoarthritis is the most common joint disease of human. Among the elderly knee Osteoarthritis is leading cause of chronic disability in developed countries¹. Some people in India are unable to walk independently from bed and bath-room because of Osteoarthritis of the knee or hip joint. Osteoarthritis (OA) also known as degenerative arthritis or degenerative joint disease, is a group of mechanical abnormalities involving degradation of joints², including articular cartilage and subchondral bone. Symptoms may include joint pain, tenderness, stiffness, locking, and sometimes an effusion. A variety of causes viz. hereditary, developmental, metabolic, and mechanical may initiate processes leading to loss of cartilage.

When bone surfaces are not well protected by cartilage, bone may get exposed and damaged. As a result of decreased movement secondary to pain, atrophy of regional muscles, and ligaments may become more lax.³ In *Ayurveda* the symptom of Osteoarthritis are approximately similar to *Janu Sandhigata Vata* in *Sushrut Samhita*⁴. The complete remedy of these diseases is still not available in modern medicine. The drugs used mainly are analgesic, anti-inflammatory and steroids, which can't spell out the disease but gives only symptomatic relief along with furious side effect like Gastritis, Ulceration of mucosal layer of stomach, heart burn and Vomiting. In *Ayurveda*, *Ajmodadi Vati* in the disease could be considered relevant treatment

measures. It helps in relieving pain without producing any side effect. Knee traction could be helpful in maintaining the reduction of space in Osteoarthritis of Knee and in the clinical recovery of the sign. So this trial was done in three groups. 1st group was treated with *Ajmodadi Vati* and 2nd group was treated with traction and 3rd group was treated with both traction and *Aimodadi Vati*. Significant results were seen in 3rd group

AIM & OBJECTIVE

1. To evaluate the efficacy of *Ajmodadi Vati* and Knee Traction in the management of *Janu Sandhigata Vata* (Primary Osteoarthritis of Knee joint)

MATERIAL & METHOD

1. Selection of the patients

Clinically diagnosed 30 patients of *Janu Sandhigat Vata* (Primary OA of Knee joint) were selected from O.P.D. / I.P.D. of N.I.A. *Shalya Tantra* Department.

Distribution of patients

Three Groups were made, each having 10 patients:

- Group A –Treated with *Ajmodadi Vati*.
- Group B –Treated with Traction therapy.
- Group C –Combined therapy of *Ajmodadi Vati* and Knee Traction.

Inclusion criteria

- Patients of *Janu Sandhigat Vata* (Primary O.A.).
- Patients above the age of 40 years of any sex, religion.

2. Exclusion criteria

Below 40 years age.
Secondary Osteoarthritis of knee joint.
Rheumatoid arthritis & Gouty arthritis.
Diabetes mellitus.

- Any systemic disorders which interfere with the treatment.

Pathological investigation

A. Radiological investigations : X-Ray of Knee

B. Hematological Investigations:

C.Total Leucocytes Counts, Differential Leucocytes Counts, Erythrocytes Sedimentation Rate, Hemoglobin %, Blood Sugar (Random), Blood Urea

D. Serological Investigations

:Rheumatoid Arthritis Factor ,

A.S.L.O.Titre. C Reactive Protein

,Serum Uric acid

E. Urine Examinations : Routine Examination, Microscopic Examination

3. Selection of Drug

Selected drug for study *Ajmodadi Vati* is mentioned in *Yogratnakar* for the *Sandhi Vata Chikitsa* for oral administration

Preparation of Drug

Ajmodadi Vati has been prepared in the GMP Certified pharmacy of N.I.A. of Jaipur, under close supervision of the experts.

4. Administration of Drug

- Dose 10 gms / day in form of tablet in divided doses.
- *Anupana* Luke warm water

Duration of treatment: Duration of trial was 4 weeks.

Follow up: Patients were followed up every 7th day up to one month after completion of trial. To see the recurrence or any type of deterioration associated with *Janu Sandhigat Vata* (OA of Knee joint.)

5. Traction-Traction of knee joint has been used as physical medicine.

Skin Traction of 2-4 kg for 8- 10 minutes (Intermittent) up to 28 days was given.

6. Assessment Criteria

The symptoms of Osteoarthritis of knee joint and joint activity were taken for the assessment results of clinical trial. Following parameters were taken in account.

- A. Pain (Visual Analogue Scale)
Tenderness
C. Swelling
D. Walking distance
E. Range of Motion (R.O.M.) of knee joint.

GRADING OF ASSESSMENT CRITERIA

Table no.1 Visual analogue scale for assessment of pain

S.N.	Type of pain	grade
1	No pain	0
2	Mild pain (up to 0-3 mark)	1
3	Moderate pain (up to 4-6 mark)	2
4	Severe pain (up to 7-8 mark)	3
5	Intolerable (up to 9-10 mark)	4

Grading table no. 2 for assessment of tenderness

S.N.	Type of tenderness	Grade
1	No pain on pressure	0
2	Mild pain on pressure	1
3	Winces on touching	2
4	Winces and withdraws affected parts	3
5	Don't allow to touch	4

Grading table no. 3 for assessment of swelling

S.N.	Type of swelling	Grade
1	No Swelling	0
2	Swelling may not be apparent on casual inspection, but recognizable to an experienced examiner	1
3	Swelling obvious even on casual observation	2
4	Markedly abnormal swelling	3

Grading table no. 4 for assessment of walking distance by patient

S.N.	Walking distance by patient	Grade
1	Walks without pain up to 1km	0
2	Walks without pain up to 500 meters	1
3	Walks without pain up to 250 meters	2
4	Feels pain on standing	3
5	Patient Cannot stand	4

Grading table no. 5 for assessment of tenderness

S.N	Range of movement in knee joint	Grade
1	0-130 degree	0
2	129-90 degree	1

3	89-60 degree	2
4	59-30 degree	3
5	30-0 degree	4

Statistical Analysis : Statistically in term of mean score (X), Standard deviation (S.D.), Standard Error (S.E.), paired and unpaired 't' test was carried out and significance at the level of 0.1, 0.05, 0.02, 0.01 and 0.001 of p levels.

OBSERVATIONS & RESULTS

Group A (*Ajmodadi Vati*) after 4th weeks of treatment the result showed non significant clinical improvement, which was 23.33% relief in pain, 25.92% relief in tenderness, 24% relief in swelling, improvement in walking distance by 23.08% and range of motion was found 16.13%. These results shows that *Ajmodada* have some anti inflammatory properties that reduces pain and tenderness and swelling but less than Group C. so Combine therapy is better than only *Ajmodadi vati*.

Group B (Knee Traction Therapy) which was used as physical medicine was responsible for the improvement in the conditions of reduced joint space and marked limitation of movement has yet not given total relief but application was encouraging. As relief in pain & tenderness was 28.57% and 24% respectively and improvement in swelling, walking distance and range of motion was observed 33.33%, 26.00% and 25.00% respectively. So physical therapy has some important role in reduced joint space and marked limitation of movement.

Group C (Combined therapy of *Ajmodadi Vati* and. Knee Traction) result were found very significant when combination of both above mentioned modalities was applied to the patients, which was relief in pain and tenderness was 48.27% & 50.00% respectively and improvement in

swelling ,walking distance and range of motion was observed 36%, 33.33% & 60.33% respectively. Thus we see good appreciable result due to combined effect of drug and physical therapy. May drug reduces inflammation and traction increases joint space, that together increases walking distance and range of motion.

By analyzing the observations and results it is clear that the combined therapy of *Ajmodadi Vati* and Knee Traction in the management of OA of the knee joint is very effective. Whereas other forms of therapy are also effective to treat the OA of the knee joint. But combined therapy is superior to other forms of the treatment.

Follow up:

In group A almost all the patients develops symptoms within 1-2 weeks after the completion of trial. In group B Approx 60 % patients have no recurrence during month of follow up period, but 40% patients develops symptoms again. In group C there were no evidence of recurrence and complication reported in follow up period of 1 month after completion of trial.

DISCUSSION:

Age: Maximum patients 43.33% were found in age groups of 51 to 60 years followed by 23.33 % patients from 40 to 50 years of age group and 13.33% patient were come more than 70 yrs. This study shows that this disease is more prevalent in age group 51 to 60 years. At this age group *Vata* is more predominant; this takes pivot role for *Dhatu ksaya* and manifest as a *Sandhigata Vata*. This support the literature about risk factor of OA. (Harrison; internal medicine 17th edition 2008)

Sex: In study 33.33 % patients were male and followed by females 67.67%. The disease Osteoarthritis is most common in women. The probable cause of this finding may be.

- Females are more obese in comparison to males and obesity is a precipitating factor for the development of OA of the knee joint.
- Radiographic evidence of knee joint OA especially symptomatic OA of knee joint appear to be more common in women than man, this support the literature. (after Hochberg M.J. *Rheumatology*, 18:1438,1991)

The present study also showed that females were more affected than male, may be due to the occupation.

Occupation: Maximum patients 60 % were house wife followed by 13.33 % Govt. job, 10% in farmer, 06.67% business men, 06.67% retired and 03.33% laborer group. The data shows that those are more exposure to occupational stress, faulty sitting posture and prolonged squatting or kneeling responsible for OA of knee joints. This support the literature about risk factor of OA (Harrison; internal medicine 17th edition 2008)

Socio Economic Status: *Janu Sandhigata Vata* is more in Middle Socio-Economic Status (60%), followed by lower (30%) and Higher (10%) probably due to more physical work and faulty dietary habit.

The probable cause of this finding may be-

- The area has mostly the middle classes.
- In this group people are more depressed, feelings of helplessness, trouble participating in every day personal and family joys and responsibilities is more which affect the articular cartilage which leads to development of *Janu Sandhigata Vata* (OA).

So the data indicate that habits and nutri-

tion may play supportive role in manifestation of *Janu Sandhigata Vata*.

Habits : Study shows that 56.67% patient vegetarian and remaining 43.33 % were taking non vegetarian diet. Both vegetarian and non vegetarian. People are taking *Vatika ahara* like dried food, freeze material, pulses. This diet responsible for *Janu Sandhigata Vata*. (*Charaka Shamhita Chikitsa Sthan* 28/15-18)

Addiction: In the present study 23.33% patients were found addicted to tobacco. Some toxic chemical are found in tobacco which may destruct collagen and other proteins and leads to development of *Janu Sandhigata Vata* (OA). These chemicals decreases proteoglycans protein found in collagen. Proteoglycans interweave with collagen and form a mesh like tissues which allows cartilage to flex and absorb physical shock. (NIMAS, USA, 1989) These chemicals may cause:

- ⇒ Retardation of cellular growth.
- ⇒ Decrease in vascularity.
- ⇒ Disturbances of Neurotransmission.

Mode of Action of Ajmodadi Vati: In *Ajmodadi vati*, the contents are *Ajmoda*, *Vidanga*, *Sunthi* etc. all of having property of *Deepana*, *Pachana*, *Ushna*, *Tikshna guna* and *Vatanulomana*. As per *Yogaratanakar*, *Ajmodadi Vati* mentioned under the *Charakacharya* mentioned most of the ingredients of *Ajmodadi Vati* in a *shoolaprasamana gana* and *Sushrutacharya* explained in *Pipalyadi gana*, which acts as a *Deepana*, *Vata-kaphahara Aruchi*, *Amarsa Pachan*, *Gulma* and *shoola ghataka*. *Ajmoda* having good property of *Vatanulomana* but not only *Ajmoda* work as *Vatanulomaka* in a short time, hence it is back up with *Tikshna*, *Ushna gunadi Chitraka*, *Pippali*, *Maricha* etc. Hence it becomes *Sukshma Srotogamini*. Due to which vi-

tiated *Kapha dosha* get dissolve, after dissolution of *Kapha dosha Vatanulomana* is a next work done by *Ajmoda* and *Hari-taki*. In this way, *Ajmodadi Vati* works in *Ama pachana* and after it *Agnivardhaka Vatanulomaka* as *Vayu* gets normal *gati* that is *Pratiloma gati* and *shoolaprashamana* occurs. So the *Ajmodadi Vati* have the potent pharmacological action on the *Janu Sandhigat vata* (O.A), the effect of the drug can be further justified on analyzing the result of clinical trial. *Vata* has the properties like *ruksha*, *laghu*, *sheeta*, *sukshma*, *chala*, *Vishada*, *khara* etc. when these *vata* properties vitiated in the body they cause symptoms of *Sandhigata Vata* (*Janu Sandhigata Vata*(OA)).

KNEE TRACTION

In present clinical trial the traction therapy had also been used to know the effectiveness of this therapy the probable mode of action of traction as follow-

- ❖ Increase joint space temporarily.
- ❖ Increase flexibility in the joint.
- ❖ Muscle, ligament and tendon strengthening..

In case of improvement of symptoms group A (*Ajmodadi Vati*) showed 16.13-

25.92% relief, group B (Knee Traction) showed 24-33.33% relief whereas in case group C (combined therapy of *Ajmodadi Vati* and knee traction) it was the highest i.e. 33.33-60.33% relief. It indicates that the combined therapy is more effective in the improvement of all symptoms. Probably these results obtain as traction act by improving the anatomy of knee joint and *Ajmodadi Vati* act on the pathology of *Janu Sandhigata Vata*.

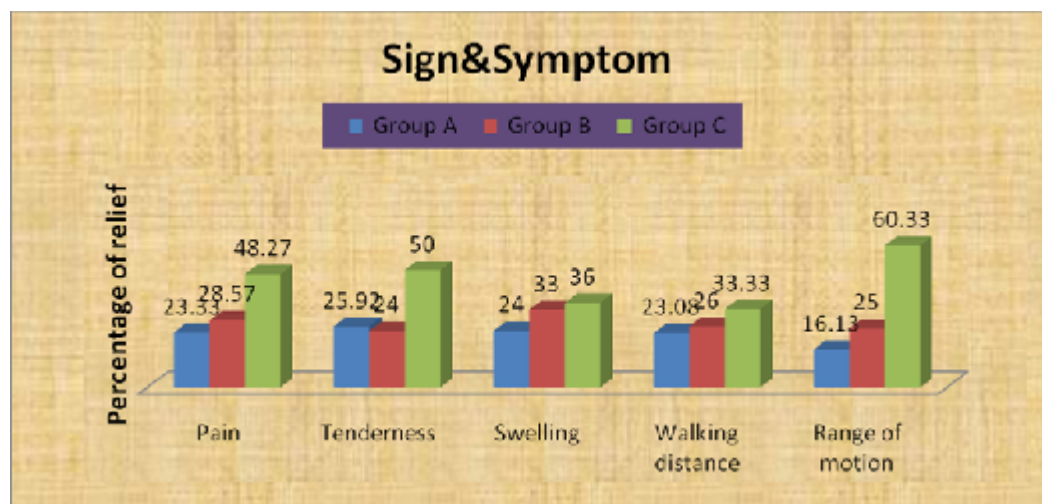
CONCLUSION:

The present study on the basis of statistical analysis concluded that *Ajmodadi Vati* & Knee traction as combined therapy is safe and reliable in the management of *Janu Sandhigata Vata* (Primary O.A. of knee Joint). However further study should be carried out in large sample size.

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Graph No-1. Showing the Relief of Symptoms (%) of 30 patients of Janu Sandhigata Vata.





Before Treatment



After treatment

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