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A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFICACY OF *MAHASNEHA* WITH *MAHANARAYANA TAILA* AS *MATRA BASTI* AND *JANU BASTI* IN *JANU SANDHIGATA* VATA VIS-À-VIS OSTEOARTHRITIS OF THE KNEE JOINT

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ABSRACT

Sandhigatavata, characterized by joint pain, swelling, and restricted movement, closely correlates with osteoarthritis (OA), the most common degenerative joint disorder. OA predominantly affects weight-bearing joints and is highly prevalent among Indian females. Conventional therapies such as NSAIDs and corticosteroids offer only symptomatic relief and may cause adverse effects. In Ayurveda, Sandhigatavata is managed through Snehana, Upanaha, Agnikarma, and Mardana. Considering Astimajjagata Vata involvement, Bahya and Abhyantara Sneha Prayoga along with Trayodashanga Guggulu are indicated. Matra Basti provides systemic Snehana and Brimhana, while Janu Basti offers localized relief. Both Mahasneha and Mahanarayana Taila are potent Vatahara and Brimhana formulations. This study aimed to compare their efficacy in managing Janu Sandhigata Vata. **Objective**: To compare the efficacy of Mahasneha and Mahanarayana Taila administered as Matra Basti and Janu Basti in Janu Sandhigata Vata vis-à-vis osteoarthritis of the knee joint. **Methods**: A comparative clinical trial was conducted on 40 patients, divided equally into two groups. Group A received Mahasneha and Group B received Mahanarayana Taila as Matra Basti (72 ml for 8 days) and Janu Basti (8 days). Both groups were administered Trayodashanga Guggulu (1000 mg/day in two doses) for 30 days. Assessments were done on day 0, day 9, and day 39. Statistical analysis was performed using SPSS with appropriate tests. **Results**: Both groups showed significant improvement, but Group A demonstrated superior outcomes— pain reduction (50% vs 39.22%), swelling resolution (100% vs 85.71%), stiffness improvement (95.24% vs 58.33%), and better WOMAC and functional scores by day 39. **Conclusion**: Mahasneha proved more effective than Mahanarayana Taila in relieving symptoms of Janu Sandhigata Vata.

KEYWORDS: Janu Sandhigata Vata, Osteoarthritis, Mahasneha, Mahanarayana Taila, Trayodashanga Guggulu.

INTRODUCTION

Sandhigatavata is a Shoola and Shotha pradhana Vatavyadhi described under Gatavata[1] characterized by joint pain aggravated by movement, swelling, and progressive functional impairment. Its clinical features closely resemble osteoarthritis (OA), a degenerative disorder of synovial joints marked by cartilage degeneration, joint space narrowing, subchondral sclerosis, and osteophyte formation[2]. OA is the most common form of arthritis, frequently affecting the knee, hip, spine, and first metatarsophalangeal joint, with a prevalence of 28.7–39%[3] in India and higher occurrence in females. Conventional management includes NSAIDs, opioid analgesics, glucocorticoids, and surgery, which are associated with adverse effects and economic burden, highlighting the need for safer, effective alternatives.

Ayurvedic management of Sandhigatavata includes Snehana, Upanaha, Agnikarma, Bandhana, Mardana, and Basti.[4] Since Sandhi Shoola is a key feature of

Astimajjagatavata[5], its treatment principles—particularly Bahya and Abhyantara Sneha prayoga—are applicable. Matra Basti, a form of Sneha Basti, is especially effective in Kevala Vata conditions due to its Snehana and Brumhana properties and is feasible for long-term OPD use. Janu Basti serves as an effective local therapy. Mahasneha[6], containing Ghrita, Taila, Vasa, and Majja, along with Vata-pacifying drugs, is indicated in Astimajjagata Vata, while Mahanarayana Taila[7] and Trayodashanga Guggulu[8] support joint and tissue health.

This comparative clinical study evaluated Mahasneha with Mahanarayana Taila as Matra Basti and Janu Basti in Janu Sandhigatavata (knee OA). Both groups showed significant improvement in pain, swelling, stiffness, crepitus, and WOMAC scores. However, the Mahasneha group demonstrated superior and sustained relief, with greater pain reduction, complete resolution of swelling, improved stiffness, and better functional recovery, establishing Mahasneha as a more effective intervention.

MATERIALS AND METHODS

Study design: It is a comparative clinical trial with pre, mid and post-test design.

Source of drug

Mahasneha and Mahanarayana taila was procured for the study from a GMP certified pharmacy, Kottakal Arya Vaidhya Sala KR Hospital Road Mysuru. Trayodashanga guggulu was procured for the study from a Shree Dootapapeshwar pvt Ltd, a GMP certified pharmacy.

Source of data

Subjects were incidentally selected from OPD & IPD of Government Ayurveda Medical College and Hospital, Mysuru and Government Hi-Tech Panchakarma Hospital, Mysuru.

Sample size and sampling method

Sample size minimum of 40 subjects, 20 in each group. A total 43 subjects having the signs and symptoms of osteoarthritis of knee joint fulfilling the inclusion criteria were registered for the study with the help of a Performa designed for the purpose of study, there were 3 dropouts. (1 Patient discontinued treatment because of family emergency and 2 patients did not came for follow up) Study was completed in 40 subjects, 20 in each group. Informed consent was taken at the time of registration. Incidental selection and purposive sampling technique was employed.

Inclusion criteria

1. Subjects of all gender belonging to the age group of 40-70years with signs and symptoms of Janusandhigatavata vis-a-vis osteoarthritis of knee joint were included in the study.

2. Both fresh and treated cases were taken for the study. Definition of fresh cases include freshly detected and untreated cases of Janu Sandhigatavata vis-a-vis osteoarthritis of knee joint. Definition of treated cases includes, already diagnosed and treated cases of Janu Sandhigatavata vis-a-vis osteoarthritis of knee, who had voluntarily discontinued the treatment and will be included after a flush out period of 7 days.

In these two categories, intervention was started from the next day after laboratory investigations and x-ray.

3. Established and treated cases of Janu Sandhigata Vata, who were still continuing the medicines. In this category, the earlier treatment was stopped and a wash out period of 7 days was given before starting the intervention.

EXCLUSION CRITERIA

1. Subjects with grade 4(severe)osteoarthritis were excluded.
2. Subjects with complications or co-morbidities of OA, Osteonecrosis of the knee, Ruptured Baker cyst, Bursitis (knee) were excluded.
3. Post surgical and Prosthetic knee joints were excluded.
4. Patients with history of acute trauma (< 3 months) and fracture of knee joint were excluded.
5. Patients suffering from any other systemic disorders such as uncontrolled DM (RBS>250mg/dl) HbA1c>9, and Hypertension (BP>160/100mmhg), renal disorder. which interfere with the course of treatment were excluded.
6. Subjects with Obesity (grade II) BMI>35 were excluded. 7. Subjects who are unfit for Matra basti procedure were excluded.

Diagnostic Criteria

Presence of signs and symptoms of janusandhigata vata vis-à-vis osteoarthritis of knee joint like pain on extension and flexion of knee joint, tenderness, swelling, stiffness, crepitus.
Radiological confirmation (X-ray of knee joint) A-P and lateral view.
Kellgren Lawrence Radiographic Grading Scale of OA

Grade Description

No radiographic findings of OA-0
Minute osteophytes of doubtful clinical significance - 1
Definite osteophytes with unimpaired joint space-2
Definite osteophytes with moderate joint space narrowing-3
Definite osteophytes with severe joint space narrowing and subchondral sclerosis – 4

Investigation

X-ray: AP & Lateral view of knee joint.
Hematological investigations: Hb%, TC, DC, ESR, RBS and urine for Sugar, Albumin & Microscopic to rule out other systemic involvement.

ASSESSMENT CRITERIA

Primary assessment parameters

WOMAC Index (Western Ontario and McMaster Universities Osteoarthritis Index)

The WOMAC Index is a validated, patient-reported outcome measure used to assess the severity of osteoarthritis (OA). It evaluates three domains: pain, stiffness, and physical function.

Scoring and Grading

- Pain: 5 items (score range: 0–20)
- Stiffness: 2 items (score range: 0–8)
- Physical Function: 17 items (score range: 0–68)
- Total WOMAC Score: 0–96

Higher scores indicate greater pain, stiffness, and functional impairment, reflecting more severe osteoarthritis.

Table no. 1: Description of grading of WOMAC-Index for Osteoarthritis.

Questions	Womac score	Grade
None	0	1
Mild	0-24	1
Moderate	25-48	2
Severe	49-72	3
Extreme	73-96	4

Intervention

The interventions were as follows: This is a comparative clinical study consisting of two groups:

GROUP A

- Matrabasti with Mahasneha 72ml for first 8 consecutive days (Day 1 to Day 8).
- Janubasti with Mahasneha for about 45 minutes for first 8 consecutive days (Day1 to Day 8).
- Trayodashanga guggulu 1000mg per day in two equally divided dose during morning and night with luke warm water after food for 30 days (Day 9 to Day 38).

GROUP B

- Matrabati with Mahanarayana taila 72ml for first 8 consecutive days(Day 1 to Day 8).
- Janubasti with Mahanaraya taila for about 45 minutes for first 8 consecutive days (Day 1 to Day 8).
- Trayodashanga guggulu 1000mg per day in two equally divided dose during morning and night with luke warm water after food for 30 days (Day 9 to Day 38).

Duration of the intervention- 38 days.

Assessment schedule

Pretest assessment - 0th day before intervention.

Mid test assessment - 9th day after completion of Matrabasti and Janubasti.

Post test assessment - 39th day after completion of intervention.

STATISTICAL METHODS

The result was compared and analyzed statistically by using the following statistical methods:

Descriptive statistics- Mean (SD), Median (IQR), Standard deviation, Percentile. Inferential testing – Mann – Whitney U test, Wilcoxon matched pairs test, independent t Test. All the statistical methods were done using SPSS windows.

IEC APPROVAL NUMBER: GAMCIEC-PG(10)2023.

RESULTS

Effect on Sandhi Shola: The reduction in pain was higher in Group A (50.00%) compared to Group B (39.22%) after 39 days of treatment. Therefore, the treatment effect in reducing pain was more effective in Group A than in Group B.

Effect on Sandhi Shotha: The reduction of swelling was greater in Group A, with a complete (100%) reduction by day 39, compared to an 85.71% reduction in Group B. This indicates that Group A had a better outcome in reducing swelling.

Effect on Sandhi Sthabdata: Both groups showed significant reduction in stiffness over time. However, the improvement was greater in Group A (95.24%) compared to Group B (58.33%) after 39 days of treatment, indicating better long-term effectiveness of the intervention in Group A.

Effect on Sandhi Atopa: Both groups showed improvement in crepitus over time. However, Group A demonstrated a greater reduction (12.50%) in crepitus after 39 days compared to Group B (10.20%). Thus, the long-term improvement in crepitus was higher in Group A than in Group B.

Effect on grading of WOMAC- Index for Osteoarthritis

Both Group A and Group B showed improvements in WOMAC status over time. However: At Day 9, both groups improved significantly from baseline, with Group A showing a trend toward better outcomes (not statistically significant). At Day 39, Group A showed significantly greater improvement than Group B ($p = 0.0024$). The overall change from baseline to Day 39 was also significantly greater in Group A ($p = 0.0263$). This suggests that while both treatments were effective, Group A demonstrated superior long-term improvement in WOMAC functional status compared to Group B.

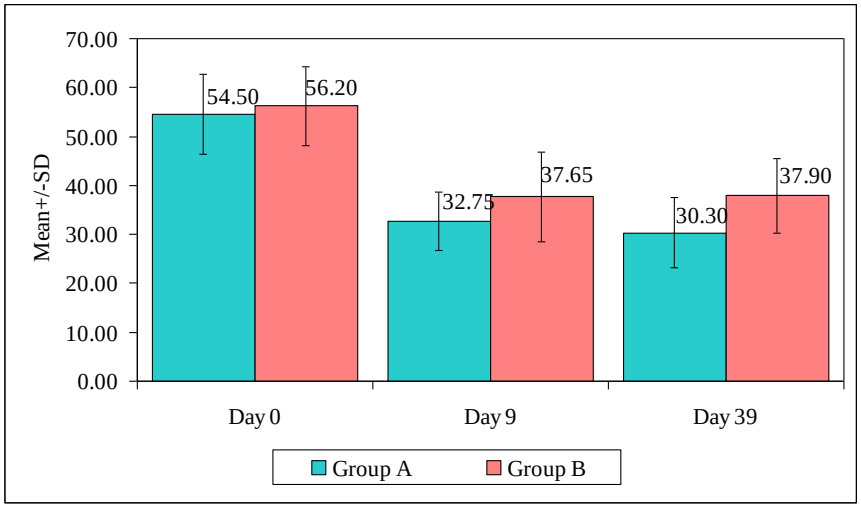

Illustration 1: Comparison of Group A and Group B with status of WOMAC at different treatment time points.

RESULTS BASED ON OVERALL ASSESMENT

Table 2: Overall changes from day 0 to day 39 in Group A and Group B.

Group	Changes from	% of changes
Group A	Day 0 to Day 9	49.69
	Day 0 to Day 39	59.13
Group B	Day 0 to Day 9	45.49
	Day 0 to Day 39	43.96

Based on the study conducted on OA, the overall outcomes show notable differences between Group A and Group B over time. In Group A, there was a 49.69% change from Day 0 to Day 9, which further increased to 59.13% by Day 39, indicating a progressive and sustained improvement over the study period. In contrast, Group B demonstrated a 45.49% change between Day 0 and Day 9, but the effect slowed down, with only a slight change to 43.96% by Day 39. These findings suggest that while both groups showed early improvements, Group A maintained and enhanced its outcome over time, whereas Group B's response reduced in the longer term.

DISCUSSION

MAHASNEHA: Described in Aṣṭāṅga Hṛdaya for Vātavyādhi and by Cāraka Samhita as Chatuḥsneha in Asthimajjāgata Vāta characterized by Sandhiśūla, is a synergistic formulation comprising Ghṛta, Taila, Vasā, Majjā, Bhadradarvādigaṇa, Madhura-skandha drugs, Anūpa māṁsa, Payā, and Amlakañjika. Its classical Pittahara, Anilahara, Vataghna, Sthirīkara, Upacaya, and Asthibala-enhancing properties counter the Rūkṣa, Laghu, Śīta, and Cala guṇas of aggravated Vāta. Modern studies corroborate its joint-lubricating, anti-inflammatory, antioxidant, chondroprotective, and immunomodulatory actions via suppression of COX-2, NF-κB, pro-inflammatory cytokines, oxidative stress, and cartilage-degrading enzymes, supporting its efficacy in knee osteoarthritis.[9]

MAHANARAYANA TAILA: Mahanarayana Taila is a classical formulation indicated in Vātavyādhi, valued for its Vātaśāmaka and Balya actions. Prepared in Tila Taila with Ajādugdha, it provides Snigdha and Sthira qualities, enhancing absorption and joint lubrication. Herbs from Bṛhat Pañcamūla, along with Bala, Atibala, Aśvagandhā, Śatāvarī, Gokṣura, Rasnā and Prasāriṇī, nourish Asthi-Majjā, reduce pain, stiffness and inflammation, and promote Rasāyana effects. Modern evidence supports its anti-inflammatory, analgesic, antioxidant, neuro-modulatory and chondroprotective actions through modulation of COX-2, NF-κB, cytokines and cartilage-degrading enzymes, making it effective in osteoarthritis and other Vāta disorders.[10]

TRAYODASHANGA GUGGULU: Trayodashanga Guggulu is a classical polyherbal formulation indicated in Vātavyādhi, particularly Sandhigata and Asthi-Majjāgata Vāta. Comprising Guggulu, Ghṛta, and herbs such as Aśvagandhā, Gudūcī, Śatāvarī, Gokṣura, Rasnā, Śuṇṭhī and Vṛddhadāru, it balances Vāta while nourishing Asthi, Majjā and Māṃsa dhātus. Rasāyana and Balya drugs enhance strength, while Vataghna and Śothahara herbs reduce pain, stiffness and inflammation. Modern studies validate its anti-inflammatory, antioxidant, immunomodulatory, analgesic and chondroprotective actions via modulation of NF-κB, COX-2, cytokines and MMPs, supporting its efficacy in knee osteoarthritis and degenerative Vāta disorders.[11]

CONCLUSION

On the basis of concepts, analysis and clinical observations made in this study, the following conclusions were drawn: Based on literature review the disease Janu Sandhigata Vata can be correlated in Osteoarthritis of knee in Modern science. The observations of the study showed that osteoarthritis of the knee was most prevalent among individuals in the 6th to 7th decade of life, with a clear predominance in females, particularly postmenopausal women. Majority of the patients belonged to occupations involving moderate to heavy physical activity and prolonged standing, which indicates occupational strain as a contributory risk factor. Bilateral knee involvement was

observed in all cases, supporting the progressive and symmetrical nature of the disease. Additionally, parameters such as Vata-Pitta Prakruti, Vishama Agni, were predominant among patients, correlating with the pathogenesis of Janu Sandhigata Vata. The clinical study demonstrated that both Group A and Group B showed significant improvements in pain, swelling, stiffness, crepitus, and WOMAC scores over the treatment period, with highly significant p values WOMAC: $p < 0.01$, $p = 0.0024$, $p = 0.0263$). However, Group A, which received Mahasneha—a formulation containing Ghruta, Taila, Vasa, Majja, and Vata-pacifying drugs—consistently demonstrated superior results. Group A showed greater reduction in pain (50.00% vs. 39.22%), complete resolution of swelling (100% vs. 85.71%), and higher improvement in stiffness (95.24% vs. 58.33%) compared to Group B. Furthermore, WOMAC scores and overall functional recovery were significantly better in Group A by Day 39. These findings suggest that Mahasneha was more effective, providing sustained symptomatic relief and functional improvement, thereby establishing it as the superior intervention. No adverse or side effects were observed during the study period.

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