Clinical Researches

Clinical study on Laksha Guggulu, Snehana, Swedana & Traction in Osteoarthritis (Knee joint)

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Abstract

The objective of the present research was to study the efficacy of Laksha Guggulu, Snehana, Swedana & Traction in the management of Osteoarthritis (Knee joint). For the present work, 30 clinically diagnosed patients were selected and randomly divided into three groups. Group A treated with Laksha Guggulu orally, Group B treated with snehana & swedana traction, Group C treated with Laksha Guggulu, Snehana, Swedana & Knee Joint Traction. The various criteria worked upon were joint pain, oedema, tenderness, restriction of joint movement, stiffness, local crepitation, walking distance. Significant results were obtained on pain in joint movement, restriction in joint movement, joint stiffness, local crepitation nearly in all the groups with best result in combined group or group C.

Key words: Osteoarthritis of Knee joint, Laksha Guggulu, Snehana, Swedana, Traction.

Introduction

Osteoarthritis is the most common type of arthritis, especially among older people, it is a joint disease that mostly affects the cartilage. Cartilage is the slippery tissue that covers the end of bones in a joint. Healthy cartilage allows the bone to glide over one another. It also absorbs energy from the shock of physical movement. In osteoarthritis the surface layer of cartilage break down under and wears away. This allow bones under the cartilage to rub together, causing pain swelling and loss of motion of the joint. Over the time the joint may lose its normal shape. Also the bone spurs small growth called osteophytes may grow on edges of the joint. Bits of bone or cartilage can break off and float inside the joint space. This causes more pain and damage.

In Ayurveda the symptom of this disease are approximately similar to that of janu sandhigata vata. The complete remedy of this disease is still not available in modern medicine the drugs used are mainly - Analgesic, anti inflammatory, steroids, which cannot pacify the disease but are only symptomatic. On the other hand furious side effect like gastritis, ulceration of mucosal layer of stomach, heart burn and vomiting are added as the unwanted results. In other words, osteoarthritis of later age is a Jarajanya vyadhī (disease of the ageing). In Ayurveda, snehana, swedana, guggulu administration in the disease could be considered relevant treatment measures. Knee traction could be helpful in maintaining the reduction of space in Osteoarthritis of knee and in the clinical recovery of the sign of crepitation.

Aims & Objectives:

1. To establish the line of treatment of Osteoarthritis of knee joint.
2. To evaluate the efficacy of Laksha guggulu, snehana, swedana & traction.

Material & Methods

Selection of Patients: Total 30 patients suffering from Osteoarthritis of knee joint were randomly selected from O.P.D. & I.P.D. of Panchakarma dept. of the institution, on the basis of specific peroforma prepared according to disease.

Grouping: Each group contains 10 patients.

Group A: The patients were treated with Laksha guggulu.
Group B: The patients were treated with Snehana, swedana, traction.

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Group C: The patients were treated with Laksha guggulu, snehana, swedana and traction.

Inclusion Criteria: Only the patients with primary OA of knee joint were included for the study.

Exclusion Criteria: Patients below 40 yrs age, and with Secondary OA of knee joint, Rheumatic arthritis, Gout, Diabetes, any other infectious diseases were excluded.

Investigations: To exclude any other pathology as well as to assess the present condition of the patient.

Hematological Investigations: Hb%, TLC, DLC, ESR, Blood sugar, Blood urea.

Serological Investigations: RA Factor, CRP (C-Reactive Protein), ASO titre.

Radiological Investigations: X-Ray of Knee joint.

Drug: Laksha Guggulu

1. Laksha - 1 part (gum).
2. Asthisanharaka - 1 part (stem).
3. Arjun - 1 part (bark).
4. Ashwagandha - 1 part (root).
5. Nagabala - 1 part (whole plant).
6. Guggulu - 5 parts (gum).

Dose: 2 gms /b.d.
Anupana: Ushna dugdha (luke warm milk) /ushnodaka (luke warm water).

Duration: 28 days.
Follow up: 2 months after completion of treatment.

Trial Therapy
Snehana (Abhyanga): For Abhyanga Dashamoola Taila was used on the affected joint before swedana for 15 minutes (28 days).

Swedana: Dashamoola kwatha was used for swedana as nadi swedana externally on the affected joints after snehana for 10 minutes (28 days).

Traction
Knee joint traction was given for 7 days after starting the treatment till the end of the treatment. Type of traction - skin foot traction, intermittent type (six days in a week). Duration-12-15 minutes per day for 3 weeks. Weight - 2.5 - 4 kg. Position-Supine position on the traction bed. Equipment - Thomas splint, traction bed, traction kit, pulley cord, weight, etc. Method-Thomas splint & traction kit was applied over the legend cord was tied & run over a pulley with a weight attached to it.

Criteria of Assessment
Clinical Evaluation: The improvement in the patients was assessed mainly on the basis of relief in the sign & symptoms of the disease. To assess the effect of therapy objectively, all the sign & symptoms were given scoring depending upon their severity.

Joint pain
- No pain - 0
- Mild pain - 1
- Moderate pain but no difficulty in walking - 2
- Slight difficulty in walking due to pain - 3
- Severe difficulty in walking - 4

Oedema
- No swelling - 0
- Slight swelling - 1
- Moderate swelling - 2
- Severe swelwling - 3

Tenderness
- No tenderness - 0
- Patient says tenderness - 1
- Winching of face on touch - 2
- Does not allow to touch the joint - 3

Restriction of joint movement
- No pain in movement - 0
- Pain without winching of face - 1
- Pain with winching of face - 2
- Prevents complete flexion - 3
- Does not allow passive movement - 4

Stiffness
- No stiffness - 0
- Mild stiffness - 1
- Moderate stiffness - 2
- Severe difficulty due to stiffness - 3
- Severe stiffness more than 10 minutes - 4

Local crepitation
- No crepitation - 0
- Palpable crepitation - 1
- Audible crepitation - 2

Walking time
- Walks without pain upto 1 km - 0
- Walks without pain upto 500 mtr - 1
- Walks without pain upto 250 mtr - 2
- Feels pain on standing - 3
- Cannot stand - 4

Statistical Analysis: Statistically in terms of mean score (X), Standard deviation (S.D.), Standard Error (S.E.), Paired & unpaired ‘t’ test was carried out and significance at the level of 0.1, 0.05, 0.02, 0.01, & 0.001 of p levels. The results were interpreted as:

p>0.05 Non significant (N.S.)
p< 0.05 Significant (S.)
p<0.01 Moderate Significant (Mo.S.)
p< 0.001 Highly Significant (H.S.)

Overall effect of Therapies
Clinical sign & symptoms, each patient was assessed on the basis of signs and symptoms of the disease. On basis of grading pattern as well as percentage relief, patients were classified as follows
Cured: 100% relief in signs and symptoms.
Marked Improvement: > 75% relief in signs and symptoms.
Moderate Improvement: 51% to 75% relief in signs and symptoms.
Mild Improvement: 25 to 50% relief in signs and symptoms.
No Improvement: Below 25% relief in signs and symptoms.

### Observations & Results

#### Table 1: Age wise distribution of 30 patients

| Age in yrs.       | Group A | Group B | Group C | Total | %   |
|-------------------|---------|---------|---------|-------|-----|
| 41-50             | 03      | 02      | 00      | 05    | 16.16|
| 51-60             | 05      | 07      | 01      | 13    | 43.33|
| 61 yrs & above    | 01      | 01      | 09      | 11    | 36.66|
| Total             | 10      | 10      | 10      | 30    | 100.00|

#### Table 2: Sex wise distribution of 30 patients

| Sex    | Group A | Group B | Group C | Total | %   |
|--------|---------|---------|---------|-------|-----|
| Male   | 01      | 05      | 02      | 08    | 26.66|
| Female | 09      | 05      | 08      | 22    | 73.33|
| Total  | 10      | 10      | 10      | 30    | 100.00|

#### Table 3: Religion wise distribution of 30 patients

| Religion | Group A | Group B | Group C | Total | %   |
|----------|---------|---------|---------|-------|-----|
| Hindu    | 10      | 10      | 10      | 30    | 100.00|
| Muslim   | 00      | 00      | 00      | 00    | 00.66|
| Total    | 10      | 10      | 10      | 30    | 100.00|

#### Table 4: Socio-economic status wise distribution of 30 patients

| Socio-economic Status | Group A | Group B | Group C | Total | %   |
|-----------------------|---------|---------|---------|-------|-----|
| Lower Middle          | 08      | 06      | 07      | 21    | 70.00|
| Upper Middle          | 02      | 04      | 03      | 09    | 30.00|
| Total                 | 10      | 10      | 10      | 30    | 100.00|

#### Table 5: Type of work wise distribution of 30 patients

| Type of work | Group A | Group B | Group C | Total | %   |
|--------------|---------|---------|---------|-------|-----|
| Ambulatory   | 10      | 06      | 10      | 26    | 86.66|
| Sedentary    | 00      | 04      | 00      | 04    | 13.33|
| Total        | 10      | 10      | 10      | 30    | 100.00|

#### Table 6: Diet wise distribution of 30 patients

| Diet   | Group A | Group B | Group C | Total | %   |
|--------|---------|---------|---------|-------|-----|
| Veg.   | 08      | 10      | 08      | 26    | 86.66|
| Non. Veg. | 02      | 00      | 02      | 04    | 13.33|
| Total  | 10      | 10      | 10      | 30    | 100.00|
Table 7: Effect on Joint pains

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 10 | 3.50       | .80           | 2.7 |    | 75.67   | <.001   |
| Group B  | 10 | 2.1        | 0.4           | 1.7 |    | 80.95   | <.001   |
| Group C  | 10 | 3.4        | 0.4           | 3.0 |    | 88.24   | <.001   |

BT=Before treatment, AT=After treatment, MD=Mean Difference, SD=Standard Deviation, SE=Standard Error.

Table 8: Effect on Oedema

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 9  | 1.67       | 1.0           | 0.67|    | 40.12   | >.05    |
| Group B  | 9  | 1.22       | 0.33          | 0.89|    | 72.95   | <.01    |
| Group C  | 5  | 1.0        | 0.2           | 0.8 |    | 80      | <.02    |

Table 9: Effect on Tenderness

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 10 | 2.10       | 1.3           | 0.8 |    | 38.10   | <.001   |
| Group B  | 10 | 2.3        | 1.4           | 0.9 |    | 39.13   | <.001   |
| Group C  | 10 | 2.6        | 1.2           | 1.4 |    | 53.85   | <.001   |

Table 10: Effect on Restriction in joint movement

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 10 | 2.1        | 1.2           | 0.9 |    | 42.86   | <.001   |
| Group B  | 10 | 1.7        | 0.4           | 1.3 |    | 76.47   | <.001   |
| Group C  | 10 | 3.5        | 0.4           | 3.1 |    | 88.57   | <.001   |

Table 11: Effect on Stiffness

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 10 | 2.1        | 1.2           | 0.9 |    | 42.86   | <.001   |
| Group B  | 10 | 2.4        | 1.3           | 1.1 |    | 45.83   | <.001   |
| Group C  | 10 | 2.2        | 1.1           | 1.1 |    | 50      | <.001   |

Table 12: Effect on Local crepitation

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 5  | 1.8        | 0.8           | 1.0 |    | 55.55   | <0.1    |
| Group B  | 5  | 2          | .08           | 1.2 |    | 60      | <.01    |
| Group C  | 6  | 1.16       | 0.33          | 0.83|    | 71.42   | <.01    |

Table 13: Effect on Walking distance:

| Groups   | n  | Mean score | % Improvement | SD  | SE  | t value | p value |
|----------|----|------------|---------------|-----|-----|---------|---------|
|          |    | BT         | AT            | MD  |     |         |         |
| Group A  | 10 | 2.9        | 0.9           | 2   |    | 68.96   | <.001   |
| Group B  | 10 | 1.7        | 0.6           | 1.1 |    | 64.71   | <.001   |
| Group C  | 10 | 3.1        | 0.4           | 2.7 |    | 87.09   | <.001   |
Table 14: Comparison of effect of different groups by using unpaired ‘t’ test on Joint pains

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.6749 | 0.3018 | 4.63  | <.001 |
| C:B    | 0.2767 | 0.1383 | 8.1315 | <.001 |
| B:A    | 0.623  | 2.786 | 0.646  | >0.1  |

Table 15: Comparison of effect of different groups by using unpaired ‘t’ test on Oedema

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.1722 | 0.0769 | 16.905 | <.001 |
| C:B    | 0.5627 | 0.2516 | 3.577  | <.01  |
| B:A    | 0.6453 | 0.3339 | 3.1296 | <0.01 |

Table 16: Comparison of effect of different groups by using unpaired ‘t’ test on Tenderness

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.5773 | 0.4409 | 4.157 | <.01  |
| C:B    | 0.711  | 0.3179 | 2.201  | <.05  |
| B:A    | 0.745  | 0.386 | 1.66   | >0.1  |

Table 17: Comparison of effect of different groups by using unpaired ‘t’ test on Restriction in joint movement

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.667  | 0.30  | 5.37   | <.001 |
| C:B    | 0.40   | 0.18  | 5.0    | <.001 |
| B:A    | 0.97   | 0.50  | 1.98   | >0.05 |

Table 18: Comparison of effect of different groups by using unpaired ‘t’ test on Stiffness

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.38   | 0.26  | 5.12   | <.001 |
| C:B    | 0.65   | 0.33  | 3.13   | <.01  |
| B:A    | 0.91   | 0.75  | 1.34   | >0.1  |

Table 19: Comparison of effect of different groups by using unpaired ‘t’ test on Local crepitation

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.17   | 0.07  | 16.90  | <.001 |
| C:B    | 0.51   | 0.22  | 0.89   | >0.1  |
| B:A    | 0.80   | 0.40  | 4.08   | <0.01 |

Table 20: Comparison of effect of different groups by using unpaired ‘t’ test on Walking distance

| Groups | S.D  | S.E  | t     | p     |
|--------|------|------|-------|-------|
| C:A    | 0.7416 | 0.4690 | 3.837 | <.01  |
| C:B    | 0.5204 | 0.3679 | 3.44  | <0.05 |
| B:A    | 0.666  | 0.386 | 1.852  | >0.05 |

Table 21: Reoccurrence of symptoms during follow up (2 months)

| Follow up | Group A | Group B | Group C | Total | %     |
|-----------|---------|---------|---------|-------|-------|
| Recurrence| 3       | 2       | 0       | 5     | 16.67 |
| No recurrence| 7     | 8       | 10      | 25    | 83.33 |

Table 22: Overall effect of therapy

| Effect of Therapy | Group A | Group B | Group C |
|-------------------|---------|---------|---------|
| n      | %       | n      | %       | n      | %       |
| Cured | 2       | 20     | 4       | 40     | 5       | 50      |
| Marked improvement | 3       | 30     | 3       | 30     | 3       | 30      |
| Moderate improvement | 3     | 30     | 2       | 20     | 2       | 20      |
| Mild improvement | 2       | 20     | 1       | 10     | 0       | 0       |
| Unchanged | 0       | 0      | 0       | 0      | 0       | 0       |

Discussion

Disease Entity: In modern science, Osteoarthritis (OA) is the most common arthritic condition affecting and increasing aging population. It is a slowly progressive joint disease. It is reported that age is the most powerful risk factor for OA. In a radiographic survey of women less than 45 years old, only 2% had OA, however prevalence was 30%, between the ages of 45 to 64 years, and for those older than 65 years it was 68%. In males, the figures were similar but somewhat lower in the older age groups. In India these degenerative changes in joints arise from the age of 30 years in women. Osteoarthritis is a major cause of morbidity and disability, limiting activity and impaired quality of life especially among the elderly. The primary complaints of patients with Osteoarthritis are pain and difficulty in joint mobility. The etiology of pain is multifactorial, including inflammatory and non-inflammatory causes. The disease is managed by NSAIDs, analgesic drugs, physiotherapy and corticosteroids etc. Above drugs are very costly and cause unwanted affects. Even the surgical treatment does not provide complete relief.

In Ayurveda, Sandhivata is given as a Vatavyadhi and it is also believed that any type of pain can not be without presence of Vata. Sandhivata is described first by Charaka in the name of “Sandhigata Anila” with symptoms of Shotha which on palpation feels as bag filled with air and Shula on Prasarana and Akunchana (pain on flexion and extension of the joints). Sushruta also mentioned Shula and Shotha in this disease leading to the diminution (Hanti) of the movement at joint involved. Madhavakara has not explained Shotha but mentioned Atopa as a symptom of Sandhigata Vata, which may also be
taken equivalent to air filled bag. He has added one more symptom i.e. Hantti Sandhi (restricted flexion and extension)\(^7\).

Thus, the disease Sandhivata can be defined as a joint disease with symptom of Shula, which aggravates by movement, Shotha with complete restricted movements at later stages.

Ayurvedic literature does not reveal the special etiological factor for Sandhivata however, the aggravative factors for Vata can be adopted for it, Vata particularly Vyana vayu has a close relationship with the movement of Sandhi, so, its aggravative factors which can produce Sandhivata are as follows\(^8\).

- **Aharaja:** Raksha - Laghu - Visthambhi - Sheeta-Katu - Tikta - Kashaya Annasevana, Sheetapana, Adhyashana, Viruddha - Asatmya - Pramita - Mithya Ahara etc. Viharaja: Ati Vata - Atapasevana, Ati Plavana - Vyavaya - Vyavaya - Cheshta, Vegavidharana, Ratrijagarana, Divaswapa, Marmaghata, Abhigatha etc.
- **Manasa:** Chinta, Krodha, Shoka, Bhaya etc.
- **Kalaja:** Abhra (cloudy season), Aparahna (evening), Aparatra (end of night), Sheetakala (winter), Varsha (rainy season) etc.

Other than these, the factors which can produce Avarana of Kaptha or Meda and the factors which make Dhatukshaya also cause Sandhivata. Asthi being a prime seat of Vata, as well as important part of Sandhi. Its Kshaya can produce aggravation of Vata and Kha-vagunya in Sandhisthana, leading to Sandhivata.

Rupa

1) **Sandhishula:** Pain usually increases by movements like Akunchana, Prasaranana because of Vata prakopa.
2) **Sandhishotha:** Vatapurna druti sparsha type of Shotha has been described by all Acharyas. Srotorodha occurs due to Vata Sanga which is responsible for Shotha. Being a Vatika type, on palpation the swelling is felt like a bag filled with air but Madhavakara gave this term a new name of Atopa\(^9\).
3) **Sandhishanti:** Charaka has mentioned this symptom as a painful prasaranana - akunchana Pravritti. First Sushruta explained this symptom followed by Madhavakara. This word is explained as inability to flexion and extension. However this symptom may not be seen in early stages. When the disease aggravated the vitiated Vata may produce Stambha and there by inability of movements.
4) **Sandhishputhana:** Sandhivata is localized Vata vyadh in which prakupta Vayu affects Sandhi. This Sthanasamshraya is a result of srotorikata present at sandhi. That means Akasha Mahabhuta is increased at the site of sandhi and Shabda is a guna of Akasha. Hence, in the process of extension and flexion, Shabda is heard or palpated.

Demographic Data

Age: All the patients of this study were above 40 years of age. Maximum number of patients were belonging to 51 - 60 years (45.33%). It can be said from the observations that usually symptoms of the disease Sandhivata starts after 4\(^{th}\) decade of life, which is Hani stage of Madhya Vaya.

Sex: In this study patients were female (73.33%) and male (26.66%). This support that Osteoarthritis of knee is more commonly found in women than man\(^10\).

Religion: In the present clinical study, all the patients i.e. 100% were found to be of Hindu community. The religion doesn’t seem to have any significant relationship with the disease Sandhivata. So, geographical proportion of Hindus in the city may be reason for its higher incidence in Hindu.

Socio-Economic Status: Socio-economic status of the patients of present trial showed that 30% of the patients were from upper middle class, which indicate that people of this class were taking food rich in fat and protein which lead to Medovridhi and may produce Avaranajanya pathogenesis of Sandhivata, 70% patients were from lower middle class which indicates that they were not able to take even correct nutritious and hygienic diets. So, lack of nutritious food is also leads to Dhatukshaya and resulted in Vata Prakopa, as well as degeneration which further lead to causing the disease.

Type of work: The type of lifestyle of the patients indicate that 86.66% of the patients were having ambulatory type of lifestyle & 13.33% were having sedentary type of lifestyle. This support the fact that the excessive work plays an important role in the development of pathology in weight bearing joint to produce osteoarthritis.

Diet: Maximum number of patients i.e. 86.66% were taking vegetarian diet and 13.33% patients were taking mixed type of diet. This does not seen to have any important role to play as far as Sandhivata is concerned.

Results

Effect on Joint Pains: Statistically highly significant improvement (p<.001) in joint pains was observed in all the three groups ,while percentage gain (88.24%) in group C is highest indicating the synergistic effect of drug with snehana, swedana & traction.

Effect on Oedema: Statistically insignificant improvement in joint pains was observed in groups A (p>.05) ,whereas significant improvement was observed in group C (p<.02) & moderate significant improvement in group B (p<.01).

Effect on Tenderness: Statistically highly significant improvement in joint pains was observed in all the three groups (p<.001), percentage gain (53.85%) is best in group C.

Effect on Restriction in Joint Movement: Statistically
highly significant improvement in joint pains was observed in all the three groups, the percentage gain (88.57%) in group C exceeds the other two groups A & B (48.86% & 76.47).

**Effect on Stiffness:** Statistically highly significant improvement in joint pains was observed in all the three groups, whereas percentage gain was highest in group C (50%).

**Effect on Local Crepitation:** Statistically insignificant improvement in joint pains was observed in group A & more significant improvement in joint pains were observed in group B & group C, whereas percentage gain was highest in group C (71.42%).

**Effect on Walking Distance:** Statistically highly significant improvement in walking distance were observed in all the three groups, whereas percentage gain was highest in group C (87.09%).

**Effect on Heamatological Parameter:** The evaluation of heamatological parameters were done for screening the exclusion & inclusion criterias & to see any side effects of drugs & treatment modalities during the trial. There were no significant changes in any groups.

**Follow up:** Follow up was done for 2 months after completing the therapy to see any worsening or recurrence in signs & symptoms of patients after treatment. Recurrence was seen only in 5 pts out of the total 30 pts with no recurrence in group C.

**Overall Result:** In group A the results were highly significant in sign & symptoms except in oedema & crepitations where the results were insignificant, whereas in group B results were highly significant in sign & symptoms except oedema & crepitations where the results were more significant. In group C the result were highly significant in sign & symptoms except in oedema where the results were significant & moderately significant results in crepitations.

Joint pain, Tenderness, Restriction of joint movement, Stiffness & Walking distance were considered for comparing the overall result among the groups because these were present in all the 30 pts. These show that group C is the best, group B is better than group A in bringing overall clinical recovery of patients.

**Comparison of three groups by unpaired ’t’ test:** For comparison of the better group unpaired ’t’ test was done, which shows that group C was either more significant or highly significant in all the sign & symptoms than group A &B except in local crepitations where group C was not significant than group B. Thus it can be concluded that group C was better than group A & B. Group B was better in treating oedema & crepitations than group A due to more significant results. Group B & C are equally competent in treating the crepitations. In walking distance the improvement was best in group C.

In combined group or group C best relief & better significant results were seen in maximum signs & symptoms of disease which were taken in present trial. Also it was seen in trial that group B was better in treating oedema & crepitations than group A due to more significant results. According to significance, group B & C were equally competent in treating the crepitations but more relief was seen in group C. In walking distance the improvement was best in group C.

**Laksha guggulu, snehana, swedana & traction in combination provided better relief in the amelioration of signs and symptoms. As a matter of fact, either of these therapies did not appear to be solely responsible for the end result. Therefore combined effect of these therapies was responsible in bringing overall clinical recovery of patients.**

**Drugs & Procedures:** For the present study 30 clinically diagnosed patients were selected & randomly divided into three groups. And all the patients were advised dietary restriction as per Ayurvedic texts. The content of Laksha guggulu include purified guggulu, Laksha, Asthishanaraka, Arjun, Ashwagandha and Nagarbala. Most of these drugs have properties like.- Vatakaphanashaka, deepana, balya, rasayana, tridoshanashaka, pachana, shothaghna, vedanasamhaka & shooolaprasamhaka. A compound preparation having these properties is likely to check the etiopathogenesis of the disease Sandhihagata Vata and arrest its progress.

Similarly snehana and swedana with Dashamoola taila and Dashamoola kwatha together bring about vatashamaka, balya, anulomaka, deepana & pachana effect in the body and may help to check the progress of the disease in Sandhihagata vata. The probable mode of action of traction could be that it increase the joint space temporarily and increases movement & flexibility of the joints. Muscle, ligament & tendon strengthening and pain is relieved because of the bony fragment is separated.

On the clinical evaluation it was observed that the total effect of the therapies was mild, moderate & maximum in group A, group B & group C respectively. As the matter of fact no single mechanism appear to be solely responsible. Combined effect of Laksha Guggulu, Snehana, Swedana & Traction was responsible in bringing overall clinical recovery of patients. The relief in clinical manifestation notably leads to functional recovery and the patient becomes functionally more competent. All the patients tolerated medicine & treatment modalities well and side or toxic effects of these were not noticed in any of the patients.

**Conclusion**

1. Laksha guggulu was an effective remedy in uncomplicated & new cases of OA.
2. Snehana, swedana & traction therapy showed much better result than oral therapy.
3. Best response was noticed when Laksha guggulu, snehana, swedana & traction was administered.

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