



"CLINICAL STUDY ON EFFICACY OF AGNIKARMA IN THE MANAGEMENT JANU SANDHIGATA VATA W.S.R TO KNEE JOINT OSTEOARTHRITIS"

Dr.Syyed Mohammed Jalaludeen MS(Ay), Phd.

Associate professor, Dept. of Salyatantra, Rajiv Gandhi Ayurveda Medical college, Chalakkara, Mahe.

Abstract

The clinical efficacy of a Kshaudra agnikarma, was evaluated in a randomized controlled clinical study in patients with knee joint osteoarthritis. 60 patients with osteoarthritis were randomly allocated to receive either existing Ayurvedic treatment or with trial group with agnikarma for a period of 15 days. Clinical efficacy was evaluated 7th & 14th day on the basis of cardinal symptoms with visual analog scale. Other parameters like lab reports and radiological examination were carried out two times . Treatment with the Agnikarma produced a significant drop in severity of pain ($P < 0.001$). Radiological assessment, however, did not show any significant changes in both the groups.

Key Words:Kshaudra,AgniKarma, Osteoarthritis, Kneejoint

Introduction

Revitalizing Ayurveda through integrated scientific research and development initiatives is very much important in terms of improving the health care standard quality of life and also in view of enormous potentials and benefits this system could offer to the field of knee joint osteoarthritis. Knee joint arthritis is the commonest form of Vatavyadhi

(osteoarthritis). Among chronic diseases, osteoarthritis (OA) is becoming increasingly significant and is responsible for a major part of the disease burden, work disability, and healthcare costs in India, Europe, and worldwide¹.

Osteoarthritis which mainly occurs in elderly and weak people, that effects day to day activities such as walking, climbing up and down,

jumping etc. thus making patient disabled / handicapped. It being a Vatavyadhi, located in Marmasthi sandhi and its occurrence in old age makes it difficult to cure. Vata Dosha plays main role in the formation of musculoskeletal disease. Pain, swelling and stiffness is the cardinal feature of the disease associated with vatavyadhi, in connection with lack of movements of the joints or painful movement of the joints. Knee joint is the seat of janu mama(vital point), and janu marma is also included in sandhi marma and vaikalyakara marma. The vaikalyakara marma are possessed of snayus and they retain the vital fluid owing to their steady and cooling virtues, and hence tend only to deform the organism in the event of their being hurt, instead of bringing on death.

Recent studies points that the nonoperative Treatment in knee joint were effective than surgery in Ist and IIInd degree injuries² and Non-operative treatment³ in osteo arthritis where also useful for patients with grade 1–3. Now a days patients looks for a quick pain relief to resume to

their normal activities. Hence *Agnikarma* (therapeutic intentional burn) considered as instant healer of pain. *Agnikarma* have been proved to be effective in *Ruja Pradhaan Vatavyadhis*⁴. *Sushruta* mentioned *Agnikarma* as para-surgical procedures in *Sandhi gata Vata* treatment modalities⁵. The common indications of Agnikarma include pain relief, stiffness, muscle spasm and inflammatory conditions. These symptoms are observed in the patients of janu sandhi gata vata. The thermal cauterisation classified into two groups; skin burning (twak dagdha) and muscle burning (deep tissues) (mamsa dagdha)⁶ and in ligaments and joints the material used for agni karma is heated kshaoudra (honey), Guda (jaggery) or Sneha(fatty substances)⁷. Hence considering above facts this study has been planned with aim and objective to evaluate the efficacy of *Agnikarma* in the management of *Janu sandhi gata vata* (osteoarthritis in knee joint) with heated Kshaoudra⁸.

In this randomised controlled clinical study total 60 patients having the complaints of janu sandhi gata vita, were randomly divided into 2 groups. In Group A, control group patients were treated with existing and time tested ayurvedic treatment Rasnasapthaka kwatha, yogaraja gululu internally and Abhyanga - Nadi Sweda and Dhara with dhanwantharam oil for 15 days. In group B (trail group) patients were treated with Rasnasapthaka kwatha and yogaraja gululu internally and Abhyanga Nadi Swedana and dhara with dhanwantharam oil along with Agnikarma for 15 days. The data shows that Agni karma with heated Kshoudra along with local Abhyanga and Nadi Swedana and dhara in trail group has provided better relief in the disease of Janu Sandhigata Vata in the initial stage and later on.

Ayurveda is one of the oldest systems of medicine worldwide and is acknowledged as a medical science by the World Health Organization⁹. Ayurveda claims to be effective in treating chronic diseases of the

musculoskeletal system¹⁰. In Ayurveda the treatment modalities were entirely different to each patient, that includes internal medicines and external therapies, lifestyle and nutritional advice, dietary supplements, medication, yoga, and purification measures.

In the second and third stages of life, the elder people are more prone to many diseases especially vathavyadhi due to vitiation of vata (physiological humour). According to Ayurveda, the causes of Vata are most often attributed to improper diet, unfavorable life style, trauma, aging processes, and constitutional predispositions. This favors an aggravation of the principle of vata, responsible for all movement, musculoskeletal, and locomotor functions in the body. The sandhi (joint) is a structure where the ends of the asthis (bones) are kept together by means of snayus (ligaments) they stabilize it to enable weight bearing. Sleshaka kapha (lubricating substance) present in the joint enables it to function smoothly and also responsible for proper functions of sandhis.

Sleshma dhara kala (Synovial membrane) lines the joint spaces. The sandhi is considered as origin of majja vaha srotas along with asthi¹¹. Among them Janu Sandhigata Vata leads major role in musculoskeletal diseases stands.

The osteoarthritis is the second most common rheumatologic problem and it is the most frequent joint disease with a prevalence of 22% to 39% in India. It is estimated that approximately four out of 100 people are affected by it. The prevalence of OA among elderly is nearly about 56.6%. Almost all persons by age 40 have some pathologic change in weight bearing joint, 25% females & 16% males have symptomatic osteoarthritis¹². Nonsteroidal anti-inflammatory drugs (NSAIDs) are still used as the initial treatment in primary care however, they are associated with a number of side effects, such as upper gastrointestinal bleeding and renal failure¹³ as well as myocardial infarction and stroke, especially in the COX-2 inhibitor category¹⁴ after the surgery the normal range of

movement also not achieving properly¹⁵

Because of above reasons patients with osteoarthritis, chronic diseases often seek complementary and alternative medicine therapies. Central Council for Research in Ayurveda and Siddha (India) Feasibility of Integrating Ayurveda with Modern System of Medicine in a Tertiary Care Hospital for Management of Osteoarthritis (Knee), claims that Ayurveda to be effective in treating chronic diseases of the musculoskeletal system¹⁶. Allopathic treatment has its own limitation in managing this disease. It can provide either conservative or surgical treatment and is highly symptomatic and with troublesome side effects. Whereas such type of conditions can be better treatable by the management and procedures mentioned in Ayurvedic classics¹⁷. Rasnasapthaka kwatha and yoga raja gulgulu internally and Abhyanga and Nadi Swedana, dhara with dhanwantharam oil and Agnikarma externally for 15 days were selected for the present study as

it has shown best for the Janu Sandhi gata Vata. Here internal medicine and local Abhyanga nalesweda are having Vatashamaka properties. In trial group group above treatment along with Agnikarma for 15 days, were given to the patients were also Vatashamana properties and get sudden relief of pain.

Aims & Objectives

- To observe the effect of Ayurvedic treatment protocol Rasnasapthaka kwatha, yoga raja gulgulu internally along with Abhyanga Nadi Swedana and Agnikarma in Janu Sandhigata Vata.
- To observe the effect of Agnikarma in Janu Sandhigata Vata.
- To compare the difference of results in the above treatment groups.

Material & Methods

Patients, suffering from Janu Sandhi Gata Vata (Knee Osteoarthritis), were selected from O.P.D. and I.P.D. of Dept of Salyatantra, Rajiv Gandhi Ayurveda Medical college, Chalakkara, Mahe.

Inclusion Criteria

- Patients with symptoms of Janu Sandhigata Vata were included.

- Patients between age group of 30 - 70 years
- Patients without any anatomical deformity were included.

Exclusion Criteria:

- Patients below 30 and above 70 years of age.
- Patients suffering from disease like Diabetes, Carcinoma, Psoriatic arthritis, Vatasonitha, septic arthritis, S. L. E & Tuberculosis are excluded.
- Fracture related to knee joint.
- Cardiac diseases (ischemic heart disease, coronary artery disease, myocardial infarction etc.)
- Pregnancy.

Grouping

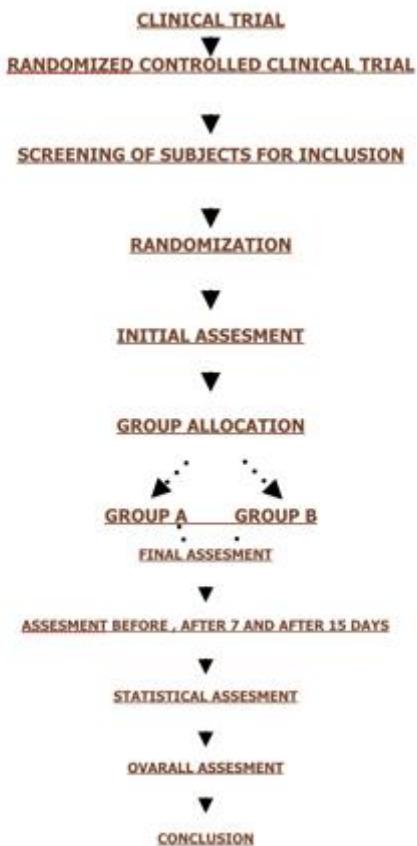
Group A: Control group patients were treated with Rasnasapthaka kwatha and yoga raja gulgulu internally and Abhyanga and Nadi Swedana, Dhara with dhanwantharam oil for 15 days

Group B: Trail group patients were treated with Rasnasapthaka kwatha, yoga raja gulgulu internally and Abhyanga Nadi Swedana, dhara with dhanwantharam oil and

"CLINICAL STUDY ON EFFICACY OF AGNIKARMA IN THE MANAGEMENT JANU SANDHIGATA VATA W.S.R TO KNEE JOINT OSTEOARTHRITIS"

Agnikarma, total procedure for 15 days. In trail group, Agnikarma were applied with heated *kshaoudra* (Honey)10 drops in and around the painful areas of knee joint.

Study design



Observations

Total 60 patients were registered (group A- 30 & group B-30), among them in group A, 26 patients had completed the treatment and 04

After Agnikarma, *kumari swarasa* were pasted and bandaged with gauze for one day. The same procedure was adopted at 7th day and 14th day.

were drop out. However in group B, 27 patients had completed and 3 were drop out.

Table 01 , Status of distribution of 60 patients of Janu sandhigatavata .

Status	Number of patient		Total	%
	GROUP A.	GROUP B		
COMPLETED	26	27	53	88.33
DROP OUT	4	3	7	11.66
TOTAL	30	30	60	100

The classical symptoms analysed by Western Ontario and McMaster Universities Arthritis Index (WOMAC) with self-administered questionnaire includes Pain, Stiffness and physical functions. Out of total 30 cases, 18 (60%) had the chronicity of less than 2 months, 12 (40 %) had the chronicity between 3 to 6 months and 8 (26.66%) had the chronicity between 6 to 9 months. The symptom Pain (Sandhisula), was observed in all of patients (100%), Swelling (Sandhishotha) in 65 % of patients, Restricted movements (Akunchana prasarana Vedana) in 75% of patients. Apart from this Vata Vridhhi and Vata Prakopa were found in 89 % patients and Asthi - Majjavaha Srotodushti was found 50 % of the patients.

Probable Mode of Action

Sandhigata Vata is Madhyama Roga Margagata Vatika disorders in which vitiated Vata gets lodged in Sandhi. Hence to treat Sandhigata Vata drugs acting on both Vata and Asthi should be selected. According to *Ayurveda*, basic humor responsible for causation of *Ruka* is *Vata* and pain is cardinal symptom in most of the *Vatavyadhis*¹⁸. Abyanga Naleesweda with dhanwantharam oil gets the combined effect of its ingredients and by the process, It reduces the fatigue of the body, balances the dosha kopa (vata), it removes the rookshatwa of the twak, removes srothorodha, removes the inflammation, improve blood circulation which accelerates the healing and repairing process¹⁹ . Charaka Acharaya says that 'the body become strong and stable by means of abyanga²⁰ , Abyanga will increase the peripheral vascularity and then immunity power of the individual ²¹.

According to Vaghbata the properties of oleation are 'to delay old age, to release fatigue, relieve vata vitiated diseases, relieve pain, promotes all tissue, increases body strength, strengthen and vitalizes skin, increases immunity etc'²². Agnikarma is very effective in treating the chief complaint of pain in patients suffering from knee joint pain. *Vata Dosha* is predominantly having *Sheeta Guna* which is exactly opposite to *Ushna Guna* of *Agni*. So *Agni* is capable of producing relief in pain by virtue of its *Ushna Guna*. In *Siravedha*, expulsion of morbid humors (vitiated *Doshas*) accumulated due to inflammatory reaction outside body can give relief in pain. *Stambha* is chiefly due to *Sheeta* and *Ruksha Guna* of *Vata Dosha*²³. *Agnikarma* having *Ushna Guna* acts as antagonist to *Vata* properties indirectly providing relief in *Stambha*. The exact cause of muscle stiffness is still unknown, but occurs most commonly due to altered neuromuscular control. In *Agnikarma* the temperature at the applied site is increased which reduces nerve reflexes resulting in relaxation of

muscle. Relief in *Suptata* after *Agnikarma* may probably be due to relaxation of the surrounding muscles and ligaments. *Agni* possesses *Ushna, Tikshna, Sukshma* and *Aashukari Gunas*, which are opposite to *Vata* and anti *Kapha* properties. Physical heat from hot *Kshaoudra* is transferred as therapeutic heat to *Twakdhatu* by producing *Samyak Dagdha Vrana*. From *Twakdhatu* this therapeutic heat acts in three ways. First, due to *Ushna, Tikshna, Sukshma, Ashukari Guna* it removes the *Srotavarodha*, pacifies the vitiated *Vata* and *Kapha Dosha* and maintains their equilibrium. Secondly, it increases the *Rasa Rakta Samvahana* (blood circulation) to affected site. The excess blood circulation to the affected part flushes away the pain producing substances and patient gets relief from symptoms. Third, therapeutic heat increases the *Dhatwagni*, so metabolism of *Dhatu* becomes proper and digests the *Amadosha* from the affected site and promotes proper nutrition from *Purva Dhatu*. In this way, *Asthi* and *Majja Dhatu* become

more stable. Thus result is precipitated in the form of relief from all symptoms of *janu sandhigatavata*. Further it can be endorsed that the therapeutic heat goes to the deeper tissue like *Mamsa Dhatu* and neutralizes the *Sheeta Guna* of *Vata* and *Kapha Dosha* and in this way vitiated Doshas come to the phase of equilibrium and patients got relief from the symptoms.

Discussion

In this study 44.89% patients were found in 41 - 55 years of age group. Sandhigata Vata starts at the age of 40 which is declining stage of Madhya Vaya. According to sex 59.18% were female patients, which indicates that Sandhigata Vata is more common in female and here the lack of female hormone (oestrogen) in the pre-menopausal period also plays an important role. Modern text also reflect the same type of prevalence, Osteoarthritis or Degenerative Joint Disease (DJD) may first appear without symptoms between 20 and 30 years of age. The symptoms, such as pain and inflammation, appear in middle age. Till the age of 55 it occurs

equally in both sexes; after 55 the incidence is higher in women.

Due to Dhatukshaya (Rasa Dhatu) in menopausal period, aggravation of Vayu occurs that causes the Sandhigata Vata. In the menopausal condition the deficiency of female hormone leads to different bone and joints problem. Lack of practice or exercise gradually leads to the weight gain which ultimately leads to Sandhigata Vata.

Among the Chief Complaints knee joint pain was found in all cases. In Sandhigata Vata there will be aggravation of Vata Dosha which is responsible for any kind of Shula Pradhana Vedana. Akunchana Prasaranajanya

Vedana & Hantisandhigati was found more in the patients, which occurs due to aggravation of Vata Dosha and Kaphakshaya. In chronic stage osteophyte formation occurs due to this sandhishotha was seen in chronic case of osteoarthritis.

Agnikarma along with internal medicine and local Abhyanga and Nadi Swedana i.e. group B has provided better relief in

"CLINICAL STUDY ON EFFICACY OF AGNIKARMA IN THE MANAGEMENT JANU SANDHIGATA VATA W.S.R TO KNEE JOINT OSTEOARTHRITIS"

the disease Janu Sandhigata Vata (Knee Osteoarthritis) in the present study. Our clinical hypothesis is that 15 days of Ayurvedic treatment with agnikarma based on Ayurvedic diagnosis is more effective than 15 days conventional standard care in the treatment of Sandhigata vata of the knee (based on the WOMAC Index).

The aim of this study is to compare

and evaluate the effectiveness of Agnikarma treatment based on Ayurvedic diagnosis in comparison with conventional treatment in Janu sandhigata vata (Knee osteoarthritis). In the present study, in affected patients knee X ray was done before and after the treatment, but no changes was observed in any X ray.

Table 2 , Effect of chief complaints in the patients of Janu Sandhi Gata Vata in Control group

Symptoms	Mean score		% of relief	S.D.	S.E.	't'	p value
	Before T.	After T					
Sandhisula	2.44	0.52	76	0.52	0.13	14.58	<0.001
Sandhoshotha	2.40	0.27	78.4	0.46	0.11	11.23	<0.001
Akunchana prasarana Vedana	1.91	0.40	66.7	0.42	0.12	12.66	<0.001
Sandhisphutana	1.46	0.65	92	0.60	0.09	14.54	<0.001
Sandhisparasha asahatva	1.44	0.11	92	0.58	0.13	9.78	<0.001
Sandhi-graha	1.80	0.12	77.89	0.50	0.10	6.90	<0.001

Table 3, effect of chief complaints in the patients of sandhi gata vata in trail group

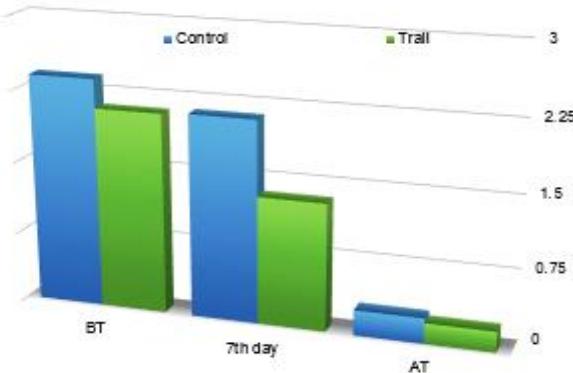
Symptoms	Mean score		% of relief	S.D.	S.E.	't'	p value
	Before T.	After T					
Sandhisula	2.34	0.34	89	0.62	0.15	12.56	<0.001
Sandhoshotha	2.1	0.22	68.4	0.55	0.16	10.23	<0.001
Akunchana prasarana Vedana	1.51	0.44	67.80	0.46	0.14	9.66	<0.001
Sandhisphutana	1.45	5.5	52	0.66	0.19	9.54	<0.001
Sandhisparasha asahatva	1.54	0.22	84.3	0.55	0.23	6.78	<0.001
Sandhi-graha	1.78	0.14	87.85	0.54	0.22	7.9	<0.001

"CLINICAL STUDY ON EFFICACY OF AGNIKARMA IN THE MANAGEMENT JANU SANDHIGATA VATA W.S.R TO KNEE JOINT OSTEOARTHRITIS"

The Effect of Agnikarma on knee joint pain, mean score observed in pain before the treatment was 2.34, after 14 days of Agni karma the Mean score is 0.34 and percentage of relief is 89, the 'Paired t' test value was 12.56 which is statistically highly significant ($P < 0.001$). The mean score observed in Sandhishotha before the treatment was 2.1, after 14 days of Agnikarma the Mean score was 0.37 and 'Paired t' test value was 10.23 which is statistically highly significant ($P < 0.001$).



Graph No.1: Showing the effect of Agnikarma on knee joint pain



Graph No.2: Showing the effect of Agnikarma on knee joint Swelling

The Above Data reveals that trail group with Agnikarma has provided better relief in the management of Janu Sandhigata Vata (Osteoarthritis) in the present study.

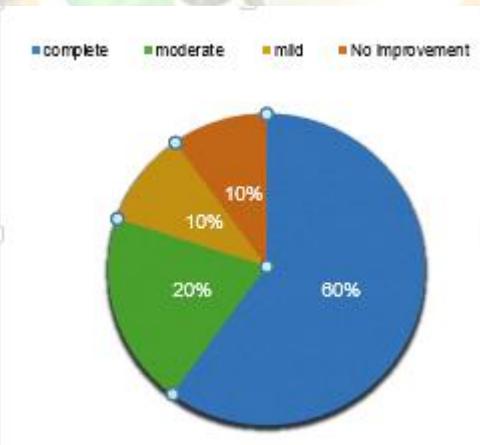
Table 4 effect of treatment in both group

Gradation	Group A		Group B	
	No of Patients	%	No of Patients	%
complete relief	14	46.66	18	60
Moderate relief	8	26.66	6	20
Mild relief	4	13.33	3	10
No improvement	0	0	0	0
Complete remission	4	12	3	10

The mean score of severity of Sandhisula showed a reduction. The results obtained were statistically highly significant ($P<0.001$) as assessed by the paired t. test. The severity of Sandhishotha was markedly decreased after Agnikarma and the results were statistically highly significant ($P<0.001$). The magnitude of Toda showed marked improvement. The improvement observed after the treatment is also statistically highly significant ($P<0.001$). The effect of Agnikarma on the range of movements (akunchana prasarana vedana) found

to be encouraging. The improvement observed after the treatment is also statistically significant ($P<0.001$). Analysis of the overall effect of the treatment Agnikarma in patients of Janu sandhi gata vata reveals that patients showed satisfactory response with the treatment. The results revealed that there was no patient got side effects with the agnikarma treatment. At the same time, this study also reveals that all patients responded to the treatment in varying grades.

Graph No.3: Showing the effect of treatment in both



CONCLUSION

Janu Sandhigata Vata is one of the Vata Vikara mostly effecting in middle and elder groups. The data shows that Kshaoudra agnikarma along with

local Abhyanga and Nadi Swedana in trial group has provided better relief in the disease Janu Sandhigata Vata (Knee Osteoarthritis) in the present study. In group A, 46. 66 % patients achieved complete remission,

while 26. 66 % patients found in moderate relief and 13.66 % were having mild improvement. In group B, trail group , 60 % patients obtained complete relief, while 20 % patients were having moderate improvement, whereas 10 % patients each were having mild relief There was no apparent change was observed in x-ray before and after treatment. Present study reveals that the Agnikarma management have potential effect on Sandhigatavata with the added advantage of being free from side effects.

REFERENCES

1. National Institute for Health and Clinical Excellence (NICE) Osteoarthritis National Clinical Guideline for Care and Management in Adults. London: Royal College of Physicians; 2008.
2. Nonoperative Treatment of Acute Knee Ligament Injuries by Pekka Kannus Markku Järvinen <https://europepmc.org/abstract/med/7371301>
3. Non-operative management of osteoarthritis of the knee joint by Raju Vaishya Godfrey, B.PariyoAmit Kumar, Agarwal, VipulVijay.
4. Bali Y, Vijayasarathi R, Ebnezar J, Venkatesh B. Efficacy of Agnikarma over the padakanistakam (little toe) and Katibasti in Gridhrasi: A comparative study. Int J Ayurveda Res. 2010;1:223–30 pubmed
5. Ambikadutta Shastri., editor. 12th ed. Varanasi: Chaukhamba Surbharti Prakashana; 2001. Sushruta, Sushruta Samhita (Part-I), Sutra Sthana, Agnikarmavidhi Adhyaya, 12/3. 38., & Ibidem. Sushruta Samhita (Part-I), Sharira Sthana, Shiravyadha Vidhi Adhyaya, 8/23. 67.
6. Sushruta Samhita sutrasthana 12/ 7 eng translation by PV Sharma page no 126
7. Sushruta Samhita sutrasthana 12/ 4 eng translation by PV Sharma page no 124
8. Comparative clinical study of Siravedha and Agnikarma in management of Gridhrasi (sciatica) J. Vaneet Kumar, Tukaram S. Dudhamal,1 Sanjay Kumar Gupta, and Vyasadev Mahanta1Author information Copyright and License information Disclaimer Department

- of Shalya Tantra, IPGT and RA, Gujarat Ayurved University, Jamnagar
- 10.1016/S0304-3959(99)00267-5.
Pubmed
9. World Health Organization. Traditional Medicine in Asia. New Delhi: WHO Regional Publications; 2002.
10. Dash V, Sharma RK. Caraka Samhita: Text with English Translation and Critical Exposition based on Cakrapani Datta's Ayurveda Dipika. New Delhi: Chaukhamba Sanskrit Series Office; 2001., and Board of Scholars (Translator) Astangahrdaya Samhita of Vaghbata. The book of Eight Branches of Ayurveda. Delhi: Vedams; 1999.
11. Acharya Vaidya Jadavaji Trikamji., editor. Chaukhamba Sanskrita Sansthan. 37. Vol. 28. Varanasi: charaka samhita Vimanasthan chapter 5 sloka 9.
12. Epidemiology of knee osteoarthritis in India and related factors – NCBI – NIH. By Chandra Prakash pal, pulkesh Singh. www.ncbi.nlm.nih.gov..articles.
13. Tramer MR, Moore RA, Reynolds DJ, McQuay HJ. Quantitative estimation of rare adverse events which follow a biological progression: a new model applied to chronic NSAID use. Pain. 2000;85:169–182. doi: 10.1016/S0304-3959(99)00267-5. Pubmed
14. Vaithianathan R, Hockey PM, Moore TJ, Bates DW. Iatrogenic Effects of COX-2 inhibitors in the US population: findings from the Medical Expenditure Panel Survey. Drug Saf. 2009;32:335–343. doi: 10.2165/00002018-200932040-00007. Pubmed
15. Dieppe P, Basler HD, Chard J, Croft P, Dixon J, Hurley M, et al. Knee replacement surgery for osteoarthritis: effectiveness, practice variations, indications and possible determinants of utilisation. Rheumatology (Oxford)1999;38:73–83
16. Bhat S, Gupta V, Srikanth N, Central Council for Research in Ayurveda and Siddha (India): Feasibility of Integrating Ayurveda with Modern System of Medicine in a Tertiary Care Hospital for Management of Osteoarthritis (Knee): An Operational Study. CCRS, WHO India Country Office Collaborative Study: Technical Report. 2007, New Delhi: Central Council for Research in Ayurveda and Siddha, Dept. of AYUSH, Ministry of Health & Family Welfare, Govt. of India

17. Comparative effectiveness of a complex Ayurvedic treatment and conventional standard care in osteoarthritis of the knee – study protocol for a randomized controlled trial by Claudia M Witt, and Andreas Michalsen Complementary Medicine Research by the Carstens Foundation.
18. Ambikadutta Shastri., editor. 12th ed. Varanasi: Chaukhamba Surbharti Prakashana; 2001. Sushruta, Sushruta Samhita (Part. I), Sutra Sthana, Aampakveshiya Adhyaya, 17/7. 71.
19. Ambikadutta Shastri., editor. 12th ed. Varanasi: Chaukhamba Surbharti Prakashana; 2001. Sushruta, Sushruta Samhita chikitsa sthamna 2/75
20. Acharya Vaidya Jadavaji Trikamji., editor. Chaukhabha Sanskrita Sansthan. 37. Vol. 28. Varanasi: Chikitsasthan; Agnivesha, Charaka Samhita, with commentary Chakrapanidatta; CS 5/85-86
21. Acharya Vaidya Jadavaji Trikamji., editor. Chaukhabha Sanskrita Sansthan. 37. Vol. 28. Varanasi: Sutrasthana ; Agnivesha, Charaka Samhita, with commentary Chakrapanidatta; C su 5/85.
22. Ashtanga hrudaya Sutrasthana Eng translation, Chaukhambha publication , New Delhi by Dr.Kanjiv Lchan 3/54- 60 page 34-35.
23. Ambikadutta Shastri., editor. 12th ed. Varanasi: Chaukhamba Surbharti Prakashana; 2001. Sushruta, Sushruta Samhita (Part-I), Sutra Sthana, Annapanavidhi Adhyaya, 46/515- 521.223-4.

Corresponding author:

Dr.Syyed Mohammed Jalaludeen,MS (Ay)PhD.

Dept of Salyatantra , Associate professor, Rajiv Gandhi Ayurveda Medical College, Chalakkara, Mahe-
Email: smjpppt@gmail.com

Source of Support: NIL

Conflict of Interest : None declared