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Research Article

A COMPARATIVE STUDY OF CONDUCTIVE AND DIRECT METHOD OF *AGNIKARMA* WITH *TAMRA SHALAKA* IN *SANDHIGATVATA* WITH SPECIAL REFERENCE TO OSTEOARTHRITIS OF KNEE JOINT

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ABSTRACT

In day to day practice we come across a situation where in patients are on long term NSAID, as well as steroids, but comparing with their side effects pain relief is not very good. So here we have to find out some better treatment for the same which can minimize their analgesic and steroid dependency. The five types of *Vatadosha* owing to causes get vitiated and manifest in places all over the body. In old age because of *Dhatukshaya, vata prakopa* occurs mainly in bones and joints this leads to *Sandhigata vata* (Osteoarthritis).

Agnikarma can be performed in intense pain caused by vata situated in skin, muscle, blood vessel, ligament, joint and bone, wound with hard raised granulation, in cysts, piles, tumors, fistula-in-ano, *Apachi*, elephantiasis, warts, moles, inguinal hernia, disease of joints, cutting of blood vessel, sinus and in excessive haemorrhage.

There are so many conservative treatments described in Ayurveda for *Sandhigatvata* as said by *Acharya Susruta* in Su.Chi. 4/8 but *Agnikarma* is best one among them as described in Su.Su.12/3. Many studies were conducted in *Sandhigata vata*, especially on *Agnikarma*. Here we have compared the efficacy of conductive and direct method of *Agnikarma* with *Tamra shalaka* in *Sandhigatvata* (osteoarthritis) of knee joint. Symptomatic Osteoarthritis of the knee occurs in 12% of persons age ≥60 and 6% of all adults age ≥30. The prevalence of Osteoarthritis rises strikingly with age. Regardless of how it is defined, Osteoarthritis is uncommon in adults under age 40 and highly prevalent in those over age 60. It is a common disease that is at least in middle-aged and elderly persons, is much more common in women than in mens.

KEYWORDS: *Sandhigatvata,* Osteoarthritis, Direct method of *Agnikarma,* Conductive method of *Agnikarma*

INTRODUCTION

The recent advances and researches in Ayurved have not only promoted its utility but also established its importance in the medical field. In today's modernized world, shift duties, stressful life, eating of unhealthy foods makes people more prone to diseases. The five types of *Vatadosha* owing to causes get vitiated and manifest in places all over the body. In old age *Vatadoshas* vitiation occur and this causes joint pain in old age. In case of females this may start after menopause stage. This problem commonly encountered in daily practice.

Vata situated in joints causes loss of functions of joints along with pain swelling therein; *Vata* situated in bones, that causes degeneration, cracking and pain.(1)

Aggravation of *Vayu* in the joints causes oedema of the joints which, on palpation, appears as it is a leather bag inflated with air; and pain while making efforts for extension and contraction of the joint.(2)

Acharya Sushrut has described *Agnikarma* as more effective than any other types of treatment because of non recurrence of diseases. It is useful in diseases which are incurable by drugs, surgery and *Kshara chikitsa*.(3)

Agnikarma can be performed in intense pain caused by *Vata* situated in skin, muscle, blood vessel, ligament, joint and bone, wound with hard raised granulation, in cysts, piles, tumors, fistula-in-ano, Apachi, elephantiasis, warts, moles, inguinal hernia, disease of joints, cutting of blood vessel, sinus and in excessive haemorrhage.(1) In case of *Vayu* located in ligaments, joints and bones, one should employ carefully unction, poultice, cauterization, binding and pressing.(4)

Aim

Comparative study for efficacy of conductive and direct method of *Agnikarma* with *Tamra shalaka* on *Sandhigatvata* with special reference to osteoarthritis of knee joint.

Objectives

To conduct a comparative study for efficacy of conductive and direct method of *Agnikarma* with *Tamra Shalaka* on *Sandhigatvata* (osteoarthritis).

Materials and Methods

Materials: Two separate *Shalakas* for conductive and direct method of *Agnikarma*, Spirit lamp, *Ghrita.*

Temperature sensor and indicator for measurement of temperature of both the *Shalakas* separately.

Source of data: Daily OPD and IPD based patients of Bharati Vidyapeeth Deemed University, Ayurved Hospital and patients diagnosed as having *Sandhigatvata* (Osteoarthritis) of knee joint as will be considered for the study. The study shall include cases that have been clinically diagnosed (symptoms based).

Patient diagnosed as having *Sandhigatvata* (osteoarthritis) of knee joint will be divided into two groups.

GROUP-A

Number of patients: 30.*Agnikarma* will be done by conductive method with *Tamra shalaka.*

Type: *Binduvat*, Depth-*Twak Dagdh*

GROUP-B

Number of patients – 30 *Agnikarma* will be done by direct method with *Tamra shalaka.*

Inclusion criteria

1. Patients clinically diagnosed as *Sandhigathvata* (osteoarthritis) of knee joint.
2. Above 40 yrs. Age will be considered.
3. Both the gender patients.

Exclusion criteria

4. Vascular disease
5. Tuberculosis
6. Infective pathology
7. Intra articular fracture of knee joint
8. Uncontrolled diabetes mellitus
9. Knee joint effusion

ASSESSMENT CRITERIA

Pain: Pain will be assessed on the basis of visual analogue scale.

Tenderness: Tenderness will be assessed on grading given below:

No tenderness - 0

Deep tenderness - 1

Mild tenderness - 2

Moderate tenderness - 3

Range of Movement – Angle of flexion and angle of extension will be recorded with the help of Goniometer before and after treatment.

Normal range of flexion is 0 -140 degree.

Normal range of extension is 140 -0 degree.

Walking Time – Walking time of patients for distance of 20 meters will be recorded on day 0, 1, 3, 7.

Swelling-Swelling before and after treatment will be measured with measuring tape and changes recorded.

Womac index for Osteoarthritis of Knee joint:

A validated and modified version of WOMAC questionnaire for Indian use by CRD, Pune will be used to assess pain, stiffness and functional ability in the knee joint. The pain and stiffness domains in the Indian version are unchanged from the original version. However, several questions from the physical function difficulty domain have been removed and replaced by those relevant to Indian customs and traditions.

Each of the question in pain (5 questions), stiffness (2 questions), and physical functional difficulty (17 questions) domain will be scored by the patient in a face to face interview, in to one of the categorical answers (none=0, mild=1, moderate=2, severe=3, extreme=4).

The score of all the answers will be summed (24 questions with a maximum score of 96) up.

Method: *Agnikarma* was done at maximum tenderness.

Agnikarma was done till *Susruta* said characters are achieved.[9]

Conductive Method: A *Shalaka* with its pointed end should touch the patient and its other end heated with spirit lamp. By this method heat will transfer from heating end to other end which is touched with the patient. This process was done for that time till the above said characteristics in *Su. Su* 12/8 are achieved.

In both methods temperature was measured by temperature sensor which was kept on patient site end of *Shalaka.*

Observations

I had taken total 60 patients in my study and following observation are seen.

Pain: The average pain significantly reduced at after treatment compared to the before treatment in Group A (P-value<0.05). The average pain significantly reduced at after treatment compared to the before treatment in Group B (P-value<0.05). The average post-treatment % change in pain level differ significantly between Group A and Group B (P-value<0.05). Direct Method is more effective than conductive Method.

Tenderness: The average Tenderness significantly reduced at after treatment compared to the before treatment in Group A (P-value<0.05). The average Tenderness significantly reduced at after treatment compared to the before treatment in Group B (P-value<0.05). The average post-treatment % change in Tenderness level differ significantly between Group A and Group B (P-value<0.05). Direct Method is more effective than conductive method.

Swelling: The average Swelling not significantly reduced after treatment compared to the before treatment in Group A (P-value>0.05). The average Swelling significantly reduced at after treatment compared to the before treatment in Group B (P-value <0.05). The average post-treatment % change in Swelling level differ significantly between Group A and Group B (P-value<0.05). Direct Method is more effective than conductive method.

Walking time: The average Walking Time significantly reduced after treatment compared to the before treatment in Group A (P-value<0.05). The average Walking Time significantly reduced at after treatment compared to the before treatment in Group B (P-value<0.05). The average post treatment % change in Walking Time level did not differ significantly between Group A and Group B (P-value>0.05). Direct Method is equally effective as that of conductive method.

Range of Movement

Flexion: The average Flexion significantly reduced after treatment compared to the before treatment in Group A (P-value<0.05). The average Flexion significantly reduced at after treatment compared to the before treatment in Group B (P-value<0.05). The average post-treatment % change in Flexion level did not differ significantly between Group A and Group B (P-value>0.05). Direct Method is equally effective as that of conductive Method.

Extension: The average Extension significantly reduced after treatment compared to the before treatment in Group A (P-value<0.05). The average Extension significantly reduced at after treatment compared to the before treatment in Group B (P-value<0.05). The average post-treatment % change in Extension level differ significantly between Group A and Group B (P-value<0.05). Direct Method is more effective than conductive Method.

Womac Index: The average Womac Index significantly reduced after treatment compared to the before treatment in Group A (P-value<0.05). The average Womax Index significantly reduced at after treatment compared to the before treatment in Group B (P-value<0.05). The average post-treatment % change in Womax Index level did not differ significantly between Group A and Group B (P-value>0.05). Direct Method is equally effective as that of conductive Method.

Results: Direct method is more effective than conductive method.

DISCUSSION

The average pain reduced significantly in both method but more significant in direct method. Tenderness reduced significantly in both method but more significant in direct method. The average swelling after treatment is not significantly reduced in conductive method but reduced significantly in direct method. The average walking time after treatment reduced significantly in both method equally. In case of Range of movement angle of flexion increases equally in both methods. The angle of extension reduced significantly in both method but more significant in direct method. Womac index after treatment reduced significantly in both method equally.

In case of Pain, Tenderness, Swelling and Angle of Extension results of direct method are more significant as compared to conductive method. There is no effect of *Agnikarma* at swelling in case of conductive method. In case of Walking Time, Angle of Flexion and Womac Index Extension results of both methods are equally significant.

Mechanism in Ayurveda

Agnikarma has *Ushna guna* and it is against the qualities of *Vata dosha*. Hence it pacifies *Vata dosha* thereby reducing pain.

Mechanism

Counter Irritation theory-Theory suggest of that exited Nocicepters are inhibits in the dorsal horn due to stimuli. When *Agnikarma* is done on the site of pain Thermorecepters are stimulated. Proximal branch of the Thermorecepter in the dorsal horn activate interneuron that synapse on the exited Nocicepters (in dorsal horn). These interneuron release the neurotransmitter Enkephalin bind with the exited Nocicepters and diminish the release of P-substance. Enkaphalins binding on the exited Nocicepters, inhibits the transmission of Nocicepter signal, thus decreasing the sensation of pain. These Nocicepters are responsive to thermal, mechanical as well as chemical stimuli.[10]

Vasodilatation Theory

After performing *Dahan* the superficial sensory nerves gets stimulated which leads to dilatation of local blood vessels, resulting in increased blood circulation due to this all metabolic waste get execrated which normalize the blood circulation thus resulting in reduction in intensity of pain.[11]

CONCLUSION

The chances of occurrence are expected above the age group of 40 years. *Vata* is an essential factor for manifestation of the disease *Sandhigatvata*. *Sandhigatvata* in case of *Janusandhi* can be equated with Osteoarthritis of knee joint in modern science. *Acharya Sushruta* has advocated five *Upakarma* for the management of *Snayu* and *Sandhigatvata,* out of them *Agnikarma* is best one. *Agnikarma* therapy is oriented to local *Vatika* and *Kaphaja* disorders. In my study

significant results are seen in both methods but more satisfactory in direct method as compared to conductive method.

Direct method of *Agnikarma* is more efficacious than conductive. In direct method temperature of *Shlaka* is ~150 degree Celsius. In conductive method temperature is ~50-60 degree Celsius.

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