



Agnikarma in The Management of Musculoskeletal Disorders A Narrative Review.

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ABSTRACT

Musculoskeletal disorders constitute a major cause of pain, functional limitation, and reduced quality of life. Chronic musculoskeletal pain is commonly managed with pharmacological and physical interventions; however, prolonged use of analgesic and anti-inflammatory medications may be associated with adverse effects. Ayurveda describes several non-pharmacological and Para surgical approaches for the management of pain, among which Agni karma occupies an important position.

Agni karma is a para-surgical procedure involving the therapeutic application of controlled heat to a selected body part using appropriate Dahanopakaranas. Classical Ayurvedic texts describe its application in painful disorders involving Twak, Mamsa, Sira, Snayu, Sandhi and Asthi, particularly when pain is associated with aggravated Vata. The therapeutic principle of Agni karma is traditionally explained through the Ushna and Tikshna properties of Agni, which are considered useful in alleviating Vata and Kapha and reducing pain.

In contemporary Ayurvedic practice, Agni karma has been investigated in conditions such as Sandhi gata Vata, Kati Sandhi gata Vata, Gridhrasi and other localized musculoskeletal pain conditions. Clinical studies have reported improvement in pain, stiffness, tenderness and functional parameters following Agni karma, although the available evidence remains limited by small sample sizes, heterogeneous protocols and methodological limitations. Modern interpretations propose that controlled thermal stimulation may influence local circulation, neuromuscular activity and pain perception.

This review discusses the classical basis, indications, procedural principles, possible mode of action, clinical applications, safety considerations and current evidence regarding Agni karma in musculoskeletal disorders.

Keywords: *Agni karma, Shalya Tantra, Musculoskeletal disorders, Sandhi gata Vata, Pain, Agni, Para-surgical procedure.*

INTRODUCTION

Musculoskeletal disorders comprise a broad group of conditions affecting muscles, bones, joints, ligaments, tendons and related structures. Pain is one of their most important clinical manifestations and may be accompanied by stiffness, restricted movement, tenderness, weakness and functional disability.

Ayurveda gives considerable importance to the management of pain, particularly in disorders dominated by Vata Dosha. Various therapeutic approaches including Snehana, Swedana, Basti, external applications and para-surgical procedures have been described. Among these, Agni karma is a distinctive therapeutic procedure in which controlled heat is applied to the affected area.

The procedure has subsequently been incorporated into clinical practice for several musculoskeletal conditions.

AIM AND OBJECTIVES

Aim

To review the classical concept, therapeutic principles, clinical applications and contemporary evidence regarding the role of Agni karma in the management of musculoskeletal disorders.

Objectives

- To review the classical description of Agni karma in Ayurveda.
- To understand the Ayurvedic rationale for its use in musculoskeletal pain.
- To explore its clinical application in selected musculoskeletal disorders.
- To review available clinical evidence regarding its effectiveness.
- To discuss its possible mode of action from an Ayurvedic and contemporary perspective.

MATERIAL AND METHODOLOGY

A narrative review was undertaken using classical Ayurvedic literature and published research articles related to Agni karma and musculoskeletal disorders. Relevant literature was identified through biomedical and Ayurvedic literature databases, including PubMed and published Ayurvedic journals.

The review focused on literature concerning Agni karma in painful musculoskeletal conditions including Sandhi gata Vata, Kati Sandhi gata Vata, Gridhrasi and other localized musculoskeletal pain disorders.

Classical Concept of Agni karma

The word Agni karma is derived from Agni and Karma, indicating a therapeutic procedure performed using the properties of Agni. It is classified among the important para-surgical procedures of Ayurveda.

Acharya Sushruta has described Agni karma in detail and discussed its indications, contraindications, materials used, anatomical sites and characteristics of appropriately performed Agni karma. The procedure may be performed using different Dahanopakaranas according to the tissue and disease involved.

Agni karma is particularly relevant in conditions characterized by severe pain. Classical descriptions indicate its application in disorders involving structures such as Twak, Mamsa, Sira, Snayu, Sandhi and Asthi.

Ayurvedic Basis in Musculoskeletal Disorders

Musculoskeletal disorders can frequently be understood within the framework of Vata Dosha, particularly when symptoms such as pain, stiffness, restricted movement and degenerative changes predominate.

The cardinal symptom of Vata disorders is Ruja or pain. Agni karma possesses predominantly Ushna and Tikshna qualities. The application of controlled heat is therefore considered useful for counteracting the cold and dry qualities associated with aggravated Vata.

In disorders where Kapha association produces stiffness, heaviness or obstruction, the Ushna property of Agni may also be therapeutically relevant.

Thus, the Ayurvedic rationale for Agni karma in musculoskeletal disorders may be summarized as:

Agni karma → Ushna/Tikshna action → Vata-Kapha alleviation → reduction in pain and stiffness → improvement in movement and function.

Common Musculoskeletal Applications

1. Sandhi gata Vata

Sandhi gata Vata is characterized by joint pain, swelling, crepitus and restricted movement and is commonly correlated with osteoarthritis in contemporary clinical practice.

A clinical study evaluating Agni karma in knee osteoarthritis reported improvement in pain and other clinical parameters. In the study, Agni karma using Loha and Rajata Shalaka produced significant pain relief, with the Loha Shalaka group demonstrating greater improvement in pain.

2. Kati Sandhi gata Vata

Kati Sandhi gata Vata may clinically correspond to degenerative disorders of the lumbar spine, including lumbar spondylosis.

A randomized clinical study involving 32 patients compared Agni karma using Pancha dhatu Shalaka with Raktamokshana. Both interventions produced significant improvement in lower back pain, stiffness, numbness and painful movements. The study reported that Agni karma was particularly effective for pain and numbness.

3. Gridhrasi

Gridhrasi is a Vata-dominant disorder characterized by pain radiating from the lower back or hip region towards the lower limb, with associated stiffness and restricted movement. It is frequently correlated with sciatica.

A clinical study comparing Agni karma over Padakanishtika with Kati Basti in Gridhrasi reported significant reduction in pain and improvement in the straight-leg-raising test in the Agni karma group.

4. Other Musculoskeletal Pain Conditions

Agni karma has also been investigated as a treatment for various localized musculoskeletal pain conditions. A review of published studies concluded that Agni karma may have a role in pain management in several musculoskeletal disorders, although the authors emphasized the need for further scientific evaluation.

Possible Mode of Action

Ayurvedic Perspective

The probable action of Agni karma can be understood through the properties of Agni. The therapeutic heat may:

Alleviate aggravated Vata due to its Ushna property.

Reduce Kapha-associated stiffness and heaviness.

Improve local function of affected tissues.

Reduce Ruja through localized therapeutic stimulation.

Produce a sustained therapeutic effect when appropriately administered.

The classical concept should, however, be interpreted according to the specific Dosha, Dhatu, site and stage of disease rather than applying Agni karma uniformly to every painful condition.

Contemporary Perspective

From a contemporary physiological perspective, controlled thermal stimulation may influence local blood flow, tissue metabolism, muscle tone and peripheral sensory mechanisms. Heat-based interventions are known to have effects on pain perception and soft-tissue extensibility.

A clinical study evaluating Para surgical Ayurvedic procedures in chronic musculoskeletal pain reported significant reductions in localized pain following Agni karma, both immediately after the procedure and at subsequent assessment points.

These observations provide a possible physiological framework for understanding the analgesic effect of Agni karma; however, the exact mechanism of action remains incompletely established.

Advantages of Agni karma

The potential advantages of Agni karma in selected musculoskeletal conditions include:

Non-pharmacological therapeutic approach.

Localized application.

Relatively simple procedure when performed by a trained practitioner.

Potential for rapid reduction in pain.

May be useful in chronic localized pain conditions.

Can be incorporated with other appropriate Ayurvedic treatment modalities.

A review of Agni karma literature has described it as a practical Para surgical intervention for several painful musculoskeletal disorders and highlighted its potential usefulness in outpatient practice.

Safety and Precautions

Agni karma is a controlled therapeutic procedure and should not be considered equivalent to indiscriminate thermal burning. Appropriate patient selection, anatomical knowledge, temperature control, instrument selection and procedural expertise are essential.

The practitioner should assess:

Prakriti and Dosha involvement.

Disease stage and severity.

Exact anatomical site.

Presence of inflammation, infection or tissue damage.

Skin integrity and local sensitivity.

General health of the patient.

Appropriate Dahanopakarana and intensity of application.

Care must be taken to avoid excessive thermal injury, scarring, infection and damage to underlying structures. The procedure should therefore be performed only by appropriately trained healthcare professionals following institutional protocols and accepted safety standards.

Current Evidence and Limitations

The available clinical literature suggests that Agni karma may provide beneficial effects, particularly in pain associated with musculoskeletal disorders. Studies have reported improvements in pain and selected functional symptoms in knee osteoarthritis, lumbar spondylosis, sciatica and chronic musculoskeletal pain.

However, the evidence base has several limitations. Many published studies involve relatively small sample sizes, different Agni karma techniques, different Shalaka materials and varying outcome measures. Blinding is also difficult in procedural interventions. Consequently, larger, well-designed randomized controlled trials with standardized intervention protocols, validated outcome measures and adequate follow-up are required.

Recent reviews continue to identify Agni karma as a promising area for clinical research while emphasizing the need for stronger evidence regarding its mechanism, standardization and long-term effectiveness.

DISCUSSION

Musculoskeletal disorders are an important cause of chronic pain and disability. The Ayurvedic approach emphasizes individualized management based on Dosha, Dhatu, Srotas, site and stage of disease.

Agni karma represents a distinctive para-surgical approach in this context. Its classical indication in painful disorders involving Snayu, Sandhi and Asthi provides a strong theoretical basis for its application in selected musculoskeletal conditions.

Contemporary clinical studies provide preliminary evidence supporting its analgesic potential. Particularly encouraging results have been reported in knee osteoarthritis and lumbar spondylosis.

Nevertheless, Agni karma should not be presented as universally effective for all musculoskeletal disorders. The response is likely to depend on appropriate patient selection, disease pathology, site of application, method of Agni karma and practitioner expertise.

Future research should focus on developing standardized Agni karma protocols, objective outcome measures, longer follow-up and comparative studies with established conventional treatments.

CONCLUSION

Agni karma is an important para-surgical procedure described in Ayurveda and has considerable relevance in the management of selected painful musculoskeletal disorders. Its classical basis is primarily associated with the management of Vata-dominant pain and disorders involving structures such as Snayu, Sandhi and Asthi.

Available clinical studies indicate potential benefits in conditions such as Sandhi gata Vata, Kati Sandhi gata Vata and Gridhrasi, particularly with respect to pain reduction and improvement of selected functional symptoms.

Although preliminary evidence is encouraging, high-quality clinical research is necessary to establish standardized protocols, clarify mechanisms of action and determine long-term efficacy and safety. Agni karma may therefore be considered a promising Ayurvedic para-surgical intervention for appropriately selected patients with musculoskeletal pain when performed by trained practitioners.

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