AGNIKARMA THERAPY IN CLASSICAL AND PRESENT ERA – A CONCEPTUAL REVIEW

1Dr Amit Kumar 2Dr Anchal Bilyan
1 Asst. Professor, Dept. of Shalya tantra, Uttaranchal Ayurvedic College, Dehradun (U.K) 2Ayurvedic Medical Officer, Dept. of Kayachikista, Govt. of Himachal Pradesh-India

ABSTRACT

Agnikarma means application of Agni directly or indirectly with the help of different materials to relieve the patient from disease. Agnikarma means treatment with the help of Agni. Sushruta indicated ‘Agnikarma’ in various disorders of skin, muscles, vessels, ligaments joints and bones. The disease which are treated with the help of Agnikarma therapy, do not reoccur. The approach of Agnikarma has been mentioned in the context of diseases like Arsha, Arbuda, Bhagandara, Sira, Snayu, Asthi, Sandhigata Vata Vikara and Gridhrasi. In Agnikarma therapy part or tissue is burned with the help of various special materials called Dahanopakarana like drugs, articles and substance used to produce therapeutic burns (samyakadagdha) during Agnikarma chikitsa.

With the advancements of medical science many techniques have been designed for pain management which work on the principle of agnikarma for pain relief e.g. Transcutaneous electrical nerve stimulation(TENS), Therapeutic ultrasound, Pulsed electromagnetic Field therapy(PEMF), Interferential Therapy(IFT) Electrical muscle stimulator (EMS) Radiation therapies like Infra-red therapy Diathermy, Electro cautery, Cauterization.

KEYWORDS: Agnikarma, dagdha, dahana, radiations, cauterization

INTRODUCTION

Sushruta has mentioned different methods of management of diseases, such as Bshesha karma, Kshara Karma, Agnikarma, Shastrakarma and Raktamokshana. In medical science Agnikarma means application of Agni directly or indirectly with the help of different materials to relieve the patient from disease. Dalhana, commentator of Sushruta classified agnikrita as karma or action carried out by Agni.

Sushruta indicated ‘Agnikarma’ in various disorders of skin, muscles, vessels, ligaments joints and bones. Sushruta has also explained that the diseases treated with Agnikarma modality won’t reoccur.

The approach of Agnikarma has been mentioned in the context of diseases like Arsha, Arbuda, Bhagandara, Sira, Snayu, Asthi, Sandhigata Vata Vikara and Gridhrasi.

In Agnikarma therapy part or tissue is burned or heat is applied with the help of various special materials called dahanopakarana. Dahanopakarana are various accessories like drugs, articles and
substance used to produce therapeutic burns (samyakadagdha) during Agnikarma chikitsa. Agnikarma may be of two types according to Dravya used - Snigdh Agnikarma - performed by means of madhu, grith, tailam used for Agnikarma to treat diseases situated in Sira, Snayu, Sandhi, Asthi: Ruksha Agnikarma - performed by means of pippali, shara, shalaka, godanta used for Agnikarma to treat diseases situated in Twak and Mamsa dhatu. Agnikarma is divided in four types on the basis of part involved e.g. twak dagdha, mamsa dagdha, sira snayu dagdha and sandhi asthi dagdha. After studying the literature available related to agnikarma, it is clarified that various pain management therapies which use heating process as their basic principle are based on the principle as described in Ayurvedic literatures. They are modified and advanced techniques suitable in the context of time. In present time there are various treatment modalities available which work on the principle of agnikarma for pain relief e.g. therapeutic ultrasound TENS, Interferential therapy, Radiation therapies like Infra-red therapy Diathermy, PEMF, Electro cautery, Cauterization.

**METHODS**

Present study is literary review emphasizing on procedure of agnikarma as described by ancient acharya, Sushruta in Sushruta samhita. The study also includes critical study of various treatment modalities related to agnikarma (heat therapy) available as per classical literature of ayurveda and use of the principle of agnikarma in present era. Critical study of multiple heat therapies available and effective in the management of arthropathies and musculo-skeletal disorders especially in pain management.

**Classical Review:**

**Classification of Agnikarma** – Though there is no clear cut description about the classification of Agnikarma in Ayurvedic literature, still with the help of its applications/use described, Agnikarma can be divided as-

**According to site**

1. Sthanika (local) - As in vicharchika, kadara, arsha.
2. Sthanantariya (Distal to site of disease)-As in visuchika, apachi, gridhrasi etc.

**According to Dravyas used**

- Snigdh Agnikarma: performed by means of madhu, grith, tailam used for Agnikarma to treat diseases situated in Sira, Snayu, Sandhi, Asthi.
- Ruksha Agnikarma: performed by means of pippali, shara, shalaka used for Agnikarma to treat diseases situated in Twak and Mamsa dhatu.

**According to Akriti**

- Valaya - Circular shape.
- Bindu - Dot like shape. According to Acharya Dalhana shalaka should be of pointed tip.
- Vilekha - Making of different shapes by heated shalaka. Vilekha type of agnikarma is further subdivided by Acharya Dalhana into three types according to the direction of line- Tiryak (Oblique), Riju (Straight), Vakra (Zigzag).
- Pratisarana - Rubbing at indicated site by heated shalaka and there is no specific shape.
According to Ashtang Hridaya there are 3 more types based on akriti:

- Ardhachandra- Crescent shape.
- Swastika- Specific shape of Swastika Yantra.
- Ashtapada - Specific shape containing eight limbs in different directions.

According to Dhatus affected:

- Twak dagdha
- Mamsa dagdha
- Sira snayu dagdha
- Sandhi asthi dagdha

Dahanupakarana

Dahanupakarana are various accessories like drugs, articles and substance used to produce therapeutic burns or heat therapy during Agnikarma Chikitsa. They are classified as follows according to various Acharya;

They can be classified as:

- Upakarana herbal in origin: Pippali (Pipper longum), Yashtimadhu (Glycyrrhiza glabra Linn.), Haridra (Curcuma longa), Guda (jaggery) Sneha Taila etc.
- Upakarana animal in origin: Ajashakrita, Godanta, Madhoochishta
- Upakarana Metallic in origin: Panchadhaatu Shalaaka Kshaudra

Use of these materials has been told according the site of use.

- Superficial diseases: Diseases involving skin Pippali, Ajashakrita, Godanta, Shara, Shalaaka are used.
- Muscular Diseases: For diseases involving muscle Jambavaushtha, Panchadhaatu Shalaaka Kshaudra are used.
- Sira Snayu Asthisandhi: For diseases of Sira, Snaayu, Sandhi, Marma diseases Madhu (Kshaudra), Guda (Jaggery) and Sneha are used.

Modern Techniques

In the present era there are many new techniques and devices which have been evolved in the field of physiotherapy for chronic pain relief, muscular stiffness and neuromuscular disorders. Among those devices some are-

1. Therapeutic ultrasound

Therapeutic ultrasound refers generally to any type of ultrasonic procedure that uses ultrasound for therapeutic benefit. There are three primary benefits to ultrasound. The first is the speeding up of thermal healing process from the increase in blood flow in the treated area. The second is the decrease in pain from the reduction of swelling and edema and the third is the gentle massage of muscles tendons and/ or ligaments in the treated area because no strain is added and any scar tissue is softened. These three benefits are achieved by two main effects of therapeutic ultrasound - thermal and non-thermal effects. The physiological effects obtained are-

- Increased collagen extensibility, increased clearance of edema and exudates, increased pain threshold, release of histamine, increased nerve conduction velocities, decreased joint stiffness, and decreased muscle spasm. These changes are the result of the chemical, biologic, mechanical, and thermal effects of the sound waves. Ultrasound is a deep heating modality. At an intramuscular depth of 3 cm, a 10-minute
hot pack treatment yields an increase of 0.8ºC, whereas at this same depth, 1 MHz ultrasound has raised muscle temperature nearly 4ºC in 10 minutes. Non-thermal effects occur when pulsed ultrasound is applied. Non-thermal effects are useful for decreasing edema and promoting cellular repair. Hence the device is indicated in many musculo-skeletal disorders- Soft tissue injuries, Chronic soft tissue and joint dysfunction, Osteoarthritis Peri-arthritis (Non-specific), Bursitis, Tenosynovitis ,Tendonitis, capsulitis, Myositis ossificans, Nerve entrapment, Chronic sprains/strains, Muscle spasmt.

2. Transcutaneous electrical nerve stimulation (TENS):
Transcutaneous electrical nerve stimulation (TENS or TNS) is the use of electric current produced by a device to stimulate the nerves for therapeutic purposes. TENS, by definition, covers the complete range of transcutaneously applied currents used for nerve excitation although the term is often used with a more restrictive intent, namely to describe the kind of pulses produced by portable stimulators used to treat pain. The unit is usually connected to the skin using two or more electrodes. A typical battery-operated TENS unit is able to modulate pulse width, frequency and intensity. Generally TENS is applied at high frequency (>50 Hz) with an intensity below motor contraction (sensory intensity) or low frequency (<10 Hz) with an intensity that produces motor contraction. While the use of TENS has proved effective in clinical studies, there is controversy over which conditions the device should be used to treat. TENS devices available to the domestic market are used as a non-invasive nerve stimulation intended to reduce both acute and chronic pain especially chronic musculoskeletal pain it may be useful for painful diabetic neuropathy. People use TENS to relieve pain for several different types of illnesses and conditions. They use it most often to treat muscle, joint, or bone problems that occur with illnesses such as osteoarthritis or fibromyalgia, or for conditions such as low back pain, neck pain, tendinitis, or bursitis. People have also used TENS to treat sudden (acute) pain, such as labor pain, and long-lasting (chronic) pain, such as cancer pain.

3. Interferential Therapy (IFT)
Interferential therapy (IFT) is one of various types of physical therapy. It uses a mid-frequency electrical signal to treat muscular spasms and strains. The current produces a massaging effect over the affected area at periodic intervals, and this stimulates the secretion of endorphins, the body's natural pain relievers, thus relaxing strained muscles and promoting soft-tissue healing. Its use is contraindicated if the affected area has wounds, cuts or infections. The basic principle of IFT is to use physiological effects of low frequency. Interferential therapy utilizes two of medium frequency currents, passed through the tissues simultaneously, where they are set up so that their paths cross & they literally interfere with each other. This interference gives rise to an interference (beat frequency) which has the characteristics of low frequency stimulation – in effect the interference mimics low frequency stimulation. The exact frequency of the
resultant beat frequency can be controlled by
the input frequencies. There are 4 main
clinical applications for which IFT appears
to be used: Pain relief, Muscle stimulation,
increased local blood flow, Reduction of
oedema In addition, claims are made for its
role in stimulating healing and repair.
As IFT acts primarily on the excitable
(nerve) tissues, the strongest effects are
likely to be those which are a direct result of
such stimulation (i.e. pain relief and muscle
stimulation). The other effects are more
likely to be secondary consequences of
these.
4. Electrical Muscle stimulator (EMS)
Electrical muscle stimulation (EMS), also
known as neuromuscular electrical
stimulation (NMES) or electromyo-
stimulation, is the elicitation of muscle
contraction using electric impulses.
EMS has received increasing attention in the
last few years because of its potential to
serve as a strength training tool for healthy
subjects and athletes, a rehabilitation and
preventive tool for partially or totally
immobilized patients, a testing tool for
evaluating the neural and/or muscular
function in vivo, and a post-exercise
recovery tool for athletes. The impulses are
generated by a device and delivered through
electrodes on the skin in direct proximity to
the muscles to be stimulated. The impulses
mimic the action potential coming from the
central nervous system, causing the muscles
to contract. The electrodes are generally
pads that adhere to the skin.
In medicine, EMS is used for rehabilitation
purposes, for instance in physical therapy in
the prevention of disuse muscle atrophy
which can occur for example after
musculoskeletal injuries, such as damage to
bones, joints, muscles, ligaments and
tendons. This is distinct from transcutaneous
electrical nerve stimulation (TENS), in
which an electric current is used for pain
therapy.
5. Pulsed electromagnetic Field therapy
(PEMF)
Pulsed electromagnetic field (PEMF)
therapy is effective because time-varying or
pulsed electromagnetic fields create micro
currents in the body’s tissues. These micro
currents elicit specific biological responses
depending on field parameters such as
amplitude, frequency, and waveform. Pulsed
electromagnetic field therapy (PEMFT), also
called is a reparative technique most
commonly used in the field of orthopaedics
for the treatment of non-union fractures,
failed fusions, congenital pseudarthrosis.
Randomized double-blind, placebo
controlled clinical trials using PEMF
therapy have shown beneficial effects for
chronic low back pain, fibromyalgia,
cervical osteoarthritis, osteoarthritis of the
knee, lateral epicondylitis, recovery from
arthroscopic knee surgery, recovery from
inter body lumbar fusions, persistent rotator
cuff tendinitis, depression, and multiple
sclerosis.
6. Electrocautery
Electrocautery, also known as thermal
cautery, refers to a process in which a direct
or alternating current is passed through a
resistant metal wire electrode, generating
heat. The heated electrode is then applied to
living tissue to achieve haemostasis or
varying degrees of tissue destruction.
Electrocautery can be used in various minor
surgical procedures in dermatology,
ophthalmology, otolaryngology, plastic surgery, and urology.

In electrocautery, the current does not pass through the patient; thus, the procedure can be safely used in patients with implanted electrical devices such as cardiac pacemakers, implantable cardioverter-defibrillators, and deep-brain stimulators. In contrast, electro-surgery is a group of commonly used procedures that utilize the passage of high-frequency alternating electrical current through living tissue to achieve varying degrees of tissue destruction. Different forms of electro-surgery include electrocoagulation, electrofulguration, electro-desiccation, and electrossection. Electro-surgery produces electromagnetic interference, which can interfere with implanted medical devices. Electrocautery is a safe and effective method of haemostasis during cutaneous surgery. It is also useful in the treatment of various small benign skin lesions, although only lesions that do not require histological review should be treated with electrocautery. Low temperatures can be used for superficial tissue destruction in the treatment of superficial and relatively avascular lesions, including the following: Seborrheic keratoses, Acrochordons, Molluscum Verrucae, Syringomas ‘Small angiomas. A dermal curette may be used concurrently to remove the lesion. Higher temperatures are effective in removing thicker skin lesions, such as the following: Sebaceous hyperplasia, Pyogenic granulomas, haemostasis of vessels in surgery.

**DISCUSSION**

In Ayurveda, treatment by heating of tissue was well known tool as early as the 1500-1000 years BC. With the advancement of science techniques of Agnikarma improved by introduction of electricity. The use of electricity in medicine began in the 18th century. Agnikarma alleviate all the Vataja and Kaphaj disorders as Ushna guna of Agnikarma is opposite to sheeta guna of Vata and Kapha dosha. According to Ayurveda, every Dhatu (tissue) have its own Dhatvagni and when it becomes low, diseases begins to manifest. In this condition, Agnikarma works by giving external heat there by increasing the Dhatvagni which helps to pacify the aggravated dosha and hence alleviate the disease.

All the pain management equipments mainly use heat/energy in some or other form as a basic principle. For example therapeutic ultrasound is most traditionally known as a deep-heating modality. It yields its effect by increased collagen extensibility, increased clearance of edema and exudates, increased pain threshold, decreased joint stiffness and decreased muscle spasm. All these are effects of deep heating system. In the same way TENS (Transcutaneous electrical nerve stimulation) is the use of electric current produced by a device to stimulate the nerves for therapeutic purposes. The main forms of cauterization used today are electrocautery and chemical cauterity. Electro cauterity - Electrosurgery has been described as high-frequency electrical current passed through tissue to create a desired clinical effect. Electrocautery is useful in haemostasis and in the treatment of various small benign skin
lesions, although only lesions that do not require histological review should be treated with electrocautery.

With the use of many new techniques and devices such as Transcutaneous electrical nerve stimulation (TENS), Therapeutic ultrasound, Pulsed electromagnetic Field therapy (PEMF), Interferential Therapy (IFT) Electrical muscle stimulator (EMS) etc. in the pain management and musculo-skeletal disorders have proven to be much beneficial and brought revolution in the field of physiotherapy especially in chronic pain management. Though Agnikarma therapy been described thousands years ago yet its principle is being used nowadays in many forms. These ne modern techniques/equipments described above are need of today’s generation. Older agnikarma therapy as described in classics are performed using limited dahanupkarana, as it is not possible to use all of them in present era. With these limitations modern techniques are well accepted in the society as they are easy to handle and modernized machines are used.

CONCLUSION

Agnikarma and its uses are described in Ayurveda much earlier than it’s utility was discovered by surgeons of rest medicine branches. However the technique and equipments have become advanced and sophisticated, but the basic principles are still the same as that of agnikarma i.e. use of energy- heat or current in the management of various diseases.

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**CORRESPONDING AUTHOR**

Dr Amit Kumar,
Assistant Professor, Dept. of Shalya tantra,
Uttaranchal Ayurvedic College,
Dehradun (U.K)-India.
E-mail: amitnegiayurveda@gmail.com

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