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NEED OF ELECTRONICALLY CONTROLLED DEVICES IN AGNIKARMA: A CRITICAL REVIEW OF CONCEPTUALISATION AND UTILITY

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ABSTRACT

Agnikarma is the practice of applying Agni, either directly or indirectly, to a patient's body to improve their condition with the aid of various materials. Treatment with Agni's assistance is known as Agnikarma. "Agnikarma" was stated in Sushruta for several ailments pertaining to the arteries, ligaments, joints, muscles, skin, and bones. Agnikarma treatment patients do not have a recurrence of their illness. The Agnikarma technique has been explored with numerous diseases including Arsha, Arbuda, Bhagandara etc. A portion of the body is burned for a longer duration using drugs and tools as part of the traditional Agnikarma therapy using a range of unusual materials called Dahanopakarana, possibly leaving multiple scars from the burns. The field of medicine has advanced to the point where numerous techniques based on the principles of Agnikarma have been developed for the management of various diseases, particularly with pain relief. The traditional devices and techniques based on electromagnetism, ultrasound waves, electrical signals alongwith radiation therapies such as infrared therapy, diathermy have a risk of iatrogenic burns and can produce unsatisfactory outcomes due to temperature fluctuations during the treatment. Therefore, a gadget for improved patient care ought to be conceptualised to get beyond these limits. In this review paper, we address the need for a gadget that combines current technology with the age-old Agnikarma method.

Key words: Agnikarma, Dahana, Samyak Dagdha, Radiations, Electrocautery, Cauterization.

INTRODUCTION

Various disease treatment techniques (karmas), including Bheshaja, Shastra, Kshar, Agni and Raktamokshana in traditional medical sciences, have been mentioned by Sushruta. Agni and karma, which translate to "heat and procedure," make up the phrase "agnikarma." When Agni, with the aid of several Dravyas and shalakas (probes), produces Samyaka dagdha vrana, it is referred to as Agnikarma and is used, either directly or indirectly, in conjunction with various materials to treat a patient's illness. Sushruta commentator Dalhana categorised Agnikrita as an activity performed by Agni, or karma. For a variety of conditions affecting the skin, muscles, arteries, ligaments, joints, and bones, Sushruta recommended "Agnikarma." Additionally, according to Sushruta, ailments treated with the Agnikarma modality won't recur [1-2]. Acharya Sushrut embarked Agnikarma as supreme in all the parasurgical procedures using hot shalaka and advocated for pain management. This unique procedure helps in relieving pain in various painful conditions such as pain experienced in Parshnishool (heel pain- calcaneal spur, planter fasciitis), Sandhigatavata (osteoarthritis), Avabahuk (frozen shoulder) etc. [3-4].

The Agnikarma in relation to the illness Gridhrasi has been elucidated by Yogaratnakara. Agnikarama Chikitsha was also referenced by Sharangdhara, Gadanigrah, Bhavaprakash, and Vangasena in relation to the treatment of various diseases. The Agnikarma technique has been explored in connection to the treatment of several disorders such as Arsha, Arbuda, Bhagandara, Sira, Snayu, Asthi, Sandhigata Vata Vikara, and Gridhrasi. Agnikarma treatment applies heat or burns a section or tissue using a range of special materials called dahanopakarana. In Agnikarmachikitsa, dahanopakarana is a term used to describe a range of accoutrements, including drugs, objects, and materials used to produce medicinal burns (Samyakadagdha).

In conventional way of Agnikarma treatment, Samyak Dagdha Agnikarma and Dagdhavrana rahit Agnikarm is given. Both the conventional methods of Agnikarma have varied therapeutic results. The uncontrolled temperature throughout procedure may results a lot of discomfort, post burn ulcer and risk of iatrogenic burn as well.

Therefore, prevailing over the limitations of conventional Agnikarma procedure, the innovative devices are researched for better patient care with no post burn scar or heat burn during Samyak Dagdha Agnikarma. Towards the Electrocautery, an user friendly electronic controlled unit with different metal probes (Gold, Silver Probes) and other temperature controlled pioneering devices are researched [5].

This review article, we draw the attention towards conceptualisation and need of safer and efficient innovative devices for Agnikarma procedure.

Methods:

The study is a literary assessment with a focus on the agnikarma technique as detailed in the Sushruta Samhita by the ancient Acharya Sushruta. It critically examines the numerous ayurvedic therapeutic modalities that are accessible in relation to agnikarma (heat therapy), as well as principally used in modern times.

The references shows that there are many focussed heat therapies are being used for pain management in musculoskeletal diseases and arthropathies [6].

Cauterization should also be performed in case of glands, piles, tumours, fistula - inano, scrofula, elephantiasis, wart, mole, inguinal hernia and disease of joint and cutting of blood vessel etc. and also in sinus and excessive haemorrhage [7].

Sorting out Agni Karma: Agnikarma technique can be categorised based on a few characteristics, including the site, disease, dhatus to be cauterised, and the type of Dravyas utilised. According to Dravya, she used: Diseases related to Twak and Mamsa dhatu are treated with Snigdh Agnikarma, which is administered with madhu, grith, and tailam; Ruksha Agnikarma, which is administered with shalaka, shara, pipali and godanta. Sthanika (Close by) like Arsha, Vicharchika, etc. Sthanantariya: (Distal to the illness location) – like in Apachi, Visuchikta, etc. Agni Karma comes in a plethora of ways according on illness. It should be performed after surgical excision for conditions such as Kandara, Arsha, etc. After incision, fistula in the ano, sinus, etc., should be addressed. In Krimidanta, it should be carried out following the cavity-filing process by Madhuchhista, Jaggery, etc.

Acharya Sushruta explained the Agni karma with Akriti: Vilekha, Pratisarana, Bindu, and Valaya. Ardha Chandra, Astapada, and Swastika was introduced by Acharya Vagbhata. In this case, Akriti is Dahnopakarana's shape, and Agni Karma is what gives rise to the ultimate form signified by Acharya Dalhana.

According to Acharya Sushruta and Vagbhata, Agni Karma must be carried out with the Dhatus's participation i.e. Twaka, Mamsa, Sirae Snayu and Sandhi Asthi. Examining the literature, many Ayurvedic pain treatment techniques that primarily involve warmth have their roots in this concept. These are advanced, modified techniques that make sense in a particular situation. Numerous Agnikarma based pain management treatments are already available which include therapeutic ultrasound, TENS, interferential therapy, radiation therapies including infrared therapy, diathermy, PEMF, and electro cautery [8].

In contemporary science, Electrocautery and Diathermy are the two methods similar to Agni Karma are described in literatures of Ayurvedic viewpoint.

(a) Electrocautery - One of the best tools for surgical procedures is electrocautery. Essentially, it is constructed from platinum wire that can be heated with an electric current to a red-hot temperature. Tissues will either bleed or clot when the red-hot wire is applied to them, closing any spots that are still bleeding. Thus, it is perfect for treating granulomas and related lesions, as well as for removing tiny skin tags, pappillomats, and other lesions, as well as for managing bleeding after curetting procedures. The first electrocauteries had a rheostat to regulate the tip's temperature in addition to a conventional battery. After home electrical sources switched from D.C. to A.C., flat batteries might be avoided by using rheostats and step down transformers. The ability of nickel-cadmium rechargeable batteries to withstand high current drain without degradation has been made possible most recently [9].

Although there are other bent Platinum tips available for various applications, a wire and cautious handling will enough for everyday use. Long-lasting and non-corrosive, it may be quickly sterilised by switching on the current and short heating the tip.

(b) **Diathermy** - Most surgical operations make use of this bi-polar devices where to produce heat, a very high frequency current is run through the patient's body. These are the types of diathermies:

(i) **Medicinal diathermy** - There is no tissue loss with this mild form of diathermy.

(ii) **Short wave diathermy** - This technique uses an oscillating electric current with a short wavelength of 3–30 metres and an extraordinarily high frequency of 10–100 million cycles per second to raise the temperature in the tissue for therapeutic purposes.

(iii) **Surgical diathermy** - A extremely high frequency current is passed through the patient's body to produce heat during this diathermy. A single electrode, sufficiently large in size and firmly fastened to one arm, generates sufficient heat at its tip to cause tissue to coagulate or sever. The pointy tip of the other electrode is movable. The current flowing from the live electrode to the "Indifferent" electrode—a big electrode in contact with the patient's body - and throughout the patient's body limits the effect. Since the current density is too low farther out to have any heating effect, there is a high current density directly below the active electrode.

Pros and Cons of electrocautery - One advantage is that there is no bleeding - a feature akin to electrocautery. The treated area is automatically sterilised by the heat generated, thus all that is needed to facilitate healing is a sterile dry dressing or no dressing at all. The heat-induced cell deformation usually prevents histological investigation of the treated lesion. A preliminary biopsy is

required when the diagnosis is uncertain. The catastrophe was probably caused by ventricular fibrillation, which could have been brought on by the current.

Methodology of Agni karma: According to Sushruta Samhita, the patient should be placed in a favourable position by pointing their head east and being held still by skilled assistants to prevent movement. Benediction chanting and the gathering of relevant supplies and equipment should also be completed. The surgeon should then use a blower or fan to heat Jambvostha or Shalaka in a smokeless fire in Khadira or Badara in order to generate the various Agni Karma forms, such as Valaya, Ardhchandra, Swastika, etc., as needed. If patients are uncomfortable during this time, try to keep them happy with brave, consoling conversations, cold water to drink, and cold-water sprays. However, procedure should be performed up until the point of complete cauterization, after which the Madhu and Ghrita should be anointed and the Dravyas should be applied cold and lubricating [10-11].

DISCUSSION

Between 1500–1000 BC, Ayurveda employed the well-known therapeutic method of heating tissue applying external heat. As science advanced and electricity was introduced, Agnikarma's techniques were further enhanced and the first applications of electricity in medicine is witnesed during the 18th century. Agnikarma cures all Vataja and Kaphaj diseases because its Ushna guna opposes the Sheeta Guna of the Vata and Kapha doshas. Every Dhatu, or tissue, has a unique Dhatvagni, and ailments start to show symptoms when this Dhatvagni falls. Agnikarma improves this condition by boosting the Dhatvagni, which in turn helps to soothe the exacerbated dosha and cure the sickness [12].

The utilisation of heat or energy in one form or another is the basic principle behind all pain management technologies. For example, deep heating is the most often used conventional application of therapeutic ultrasound. It functions through enhancing the threshold for pain, decreasing joint stiffness, lowering muscle spasm, improving the extensibility of collagen, and promoting the elimination of oedema and exudates. All of these are effects of the system of deep heating. Similarly, TENS (transcutaneous electrical nerve stimulation) uses an apparatus's generated electric current to stimulate nerves for medical reasons [13].

Electrocautery and chemical cautery are the two primary methods of cauterization that are now in use, according to Robinson Andrew J. High-frequency electrical current is sent into tissue to provide the intended clinical effect in electro cautery-electro surgery. Electrocautery is helpful for treating a variety of tiny benign skin lesions and for hemostasis, however it should only be used for lesions that don't need to be reviewed histologically [14].

The area of physiotherapy has seen a revolution with the introduction of numerous new devices and techniques, including TENS, PEMF, IFT, EMS, and therapeutic ultrasound, among others, for the treatment of musculoskeletal diseases and pain management. These advancements have proven to be quite effective, particularly in the treatment of chronic pain. Even though the principles of Agnikarma therapy were first outlined thousands of years ago, they are still applied in many ways today. The above-mentioned modern practices and technologies are indispensable to the present generation. The older agnikarma therapy described in classics uses limited dahaanupkarana, as it is not practical to apply all of them in the modern period. Society nevertheless supports modern techniques since they are controlled and involve the use of advanced machinery, despite these disadvantages [15].

CONCLUSION

Long before surgeons in other medical specialties discovered the potential benefits of agnikarma in Ayurveda. Agnikarma's basic principles - the use of energy, such as heat or electricity, to heal a range of illnesses - remain the same, even though the techniques and instruments have developed into more sophisticated and sophisticated forms. This review is an effort to present knowledge and obtain Agnikarma's updated devices, which will help it go over the limitations of its traditional ways. The traditional method has drawbacks: it necessitates preheating or a constant heat source on the probe's other side, which increases the danger of iatrogenic burns, and uneven temperature fluctuations during the operation result in subpar outcomes.

The traditional method has a risk of iatrogenic burns and can produce unsatisfactory outcomes due to temperature fluctuations during the treatment. Therefore, a gadget for improved patient care needs to be conceptualised in order to get beyond these limits. In this review paper, we address the need for an electronic gadget that combines modern technology with the age-old Agnikarma method.

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