

Available online at <http://www.ijims.com>

ISSN - (Print): 2519 – 7908 ; ISSN - (Electronic): 2348 – 0343

IF:4.335; Index Copernicus (IC) Value: 60.59; Peer-reviewed Journal

## Role of Agnikarma for pain relief in Various Diseases-A Review article

Vaikhari Dhurve<sup>1\*</sup>, Ananta Karale<sup>2</sup>

1.Associate Professor, Shalya department, DMAMCHRC, Nagpur

2.Intern, BAMS, DMAMCHRC, Nagpur

\*Corresponding author: Vaikhari Dhurve

### Abstract

Ayurveda is a life science that is comprehensive. The prevention and treatment of disease is the goal of this science. Ayurveda is able to eliminate diseases without any side effect. In Sushruta Samhita various surgical and parasurgical procedure describe for various diseases. Among them *Agnikarma* is supreme in all parasurgical procedure. It is widely used in musculoskeletal condition like Frozen shoulder, IVDP, Osteoarthritis, Spondylitis, Spondylolisthesis, Sciatica, Tennis Elbow etc. The basic principle of *Agnikarma* is to transfer Thermal energy in the disease entity with the help of specific device in specific tissue. This review is an attempt has been made to study various research articles and analyzed the role of *agnikarma* and its applicability on various painful disorders which helps to gain more knowledge about *agnikarma*. In this article Total 25 research work conducted on *agnikarma* from various journals have been studied. *Agnikarma* is found most important treatment in the pain management. It is safe, easy to perform, cost effective and OPD level procedure.

**Key words** - Agnikarma, Musculoskeletal pain, Painkiller, Ayurveda

### Introduction

Ayurveda, an ancient art of life, plays an active part in the treatment of numerous disorders. Shalya tantra is the surgical discipline of Ayurveda & have dual treatment procedures *shastrakarma* (surgical procedure) & *anushtra-karma* (parasurgical procedure). The later includes *Kshara-karma*, *Agnikarma* and *Jalaukavacharana* (Leech therapy). *Agnikarma* is superior among *shastra* (surgical) & *anushastra* (parasurgical) procedures due to its simple technique & optimum result. <sup>(1)</sup> The *Veda* mentions about *Agni* as God and use it as therapeutic purposes in treating diseases. Acharya Charak, Sushruta, Vagbhata, Harita, Laghutrayee granthas, current text & seers of Ayurveda described the basic principle of *Agnikarma* and its use for treating various disorders and pain management.) Acharya Charak mentioned different type of materials for *Agnikarma* but not given separate classification of *Agnikarma*. Sushruta and Vagbhata describe *Agnikarma* in detail in form of material required, type of heat used, type of shape performed during act like circle, dotted etc.

### Classification of Agnikarma

According to Akriti -On the basis of *dahanavishesha* the *Agnikarma* is of 4 types by Sushruta as

a) *Valaya* (circle), b) *Bindu* (dotted), c) *Vilekha* (linear or parallel line), d) *Pratisarana* (rubbing)

And 7 types by Vagbhatta as a) *Valaya* (circle), b) *Bindu* (dotted), c) *Vilekha* (linear or parallel line), d) *Pratisarana* (rubbing), e) *Ardhachandrakar* (semilunar, semicircular), f) *Swastika* (swastika like symbol, cruciform), g) *Ashtapadi* (having 8 marks) .

The selection of the design i.e. *dahanvishesha* was to be done by the clinician, depending on site, size and shape of lesion.

### **Material used at different places in Agnikarma <sup>(2)</sup>**

As per Sushruta the different type of materials is indicated at site of *twak*, *mamsha*, *sira*, *snayu*, *asthi*, *sandhi* etc.

Material used for *twakdagdha* - *Pippali*, *ajasakrit*, *godant*, *sara*, *shalaka*, *varti* (*Guggulu* etc), *Suryakant mani*.

Material used for *mamsha dagdha* - *Jambaustha*, other metallic instruments.

Material used for *sira*, *snayu*, *asthi*, *sandhidagdha* - *Madhu*, *guda*, *sneha*.

### **Indication And Contraindication of Agnikarma**

Indication is in *Vata & Kaphaja* diseases, when all other measures are at failure, recurrence of disease even after surgery, nonhealing/unhealed ulcerations in some condition

Contraindication is *Pittaj prakriti*, *Pittaja roga* or diseases dominant by *Pitta dosha*. If foreign body present inside. At marmasthana (vital points), Person who refuse for the procedure, Anaemic patient, diabetic patients & in which *swedan* is contraindicated. According to strengthen *Durbala*, *Abala*, *Bheeru* person. Season - *Sharad* and *Greeshma*. Age- *Baal* and *Vriddha*. Condition - *Garbhini*, *vishadayukta*. Disease - *Raktapitta*, *Bhinna kostha*, *Trisharto*, *Madyapeeta* *Atisari* etc.

### **Trividha Karma in Agnikarma**

*Poorvakarma* (Pre-operative preparation)

Preparation of patient & preparation of local part

Preparation of required drugs equipment's

Preparation to manage any complications

*Pradhankarma* (Operative)

Actual transmission of therapeutic dose of heat to diseased or local site.

*Paschatkarma* (Post-operative)

Rest the local part

Application of *Vrana ropak* drug like *jatyadi* oil, honey, *ghrit*, *yastimadhu* powder etc.

Advice about *Pathya & Apathya*.

## Observation and Result

### *Agnikarma and katibasti - gridhrasi (sciatica)*

The purpose of this research work was to evaluate the efficacy of Agnikarma over padakanistakam (little toe) and Katibasti in the management of Gridhrasi. Patients with lumbar intervertebral disc prolapse-related classical Gridhrasi (Sciatica) characteristics were chosen. In order to control Gridhrasi, patients were allocated into two groups namely Group A (*Agnikarma*) and Group B (*Katibasti*). Data were gathered and observations were done prior to treatment on the eighth, fifteenth, and twenty-second days. The finding showed that *Agnikarma* therapy was superior to *katibasti* in terms of pain relief. The radiological revealed no modification to either management strategy. <sup>(3)</sup>

### *Agnikarma and Ajmodadi vati - ghridhrasi (sciatica)*

This study was carried out to investigate the efficacy of Agnikarma, Ajmodadi Vati, and combination therapy. Three groups of 56 patients received treatment overall. 22 patients in Group A received with *Agnikarma* treatment, whereas 18 patients in Group B received *Ajmodadi Vati* treatment. In Group C 16 patients were treated with Combined therapy. Both prior to and following the treatment, data was gathered and observations were recorded. Compared to other two trials the combination therapy group (which include *Ajmodadi vati* and *Agnikarma*) shown a noteworthy decrease in symptomatic indices. <sup>(4)</sup>

### *Snigdha Agnikarma -a scientific and analytical approach*

This study focuses at the thermal behaviour of snigdha dravyas and panchadhatu shalaka. The measurement of temperature is done directly. *Snigdha dravyas* require lower temperature to get boil whereas *Panchadhatu shalaka* needs higher temperature to heat red hot (235-240<sup>0</sup>C). In locTherapeutic efficacy of *snighdha dravya agnikarma* is more in locomotor diseases. Omotor illness, *Snigdha dravas* has a greater therapeutic efficacy. *Agnikarma*'s use of Snigdha dravya is thought to help heat stay in the *Sukshma Sira* for a longer period of time and penetrate deeper. Despite the fact that *Snigdha agnikarma* will cause more superficial tissue distraction, its effectiveness can be compromised due to its high healing value. <sup>(5)</sup>

### *Agnikarma- Tennis elbow*

A protracted course of treatment is necessary for Tennis elbow, a painful ailment that limits forearm movement. Tennis elbow has been linked to *snayugatavata*, according to Ayurveda. The only available treatment for these is symptomatic such as using anti-inflammatory, analgesic medicine, injecting steroids, exercising, physiotherapy etc. Sushruta recommends agnikarma for conditions involving snayu (ligaments and tendons), asthi (bone), and sandhi (joints). As a result, in this study, a case of tennis elbow (*snayugatavata*) was treated using Agnikarma, as well as the oral administration of Ashwagandha and Navajivana Rasa powders for three weeks. This combined therapy significantly reduced discomfort and mobility of the elbow joint. <sup>(6)</sup>

### *Agnikarma- Charmakila (wart)*

The condition *Charmakila* is treated in this case study using electric cauterization which is essentially a modernized form of traditional *Agnikarma* therapy. According to research, electric cauterization is a successful, less intrusive parasurgical approach for treating Charmakila (wart). One patient received treatment on OPD basis and throughout therapy and postoperative period, the patient tolerated the treatment well and experience no complication. Therefore, in Charmakila using electric cautery as an

*Agnikarma's Dahana upakarana* is greatest alternative with the least amount of trauma and is readily accepted by both the patient and surgeon. <sup>(7)</sup>

#### *Agnikarma* -Frozen shoulder

The purpose of this study was to determine the effectiveness of *Agnikarma* in the treatment of frozen shoulder. Total 10 cases presenting with features of frozen shoulder were selected. Patients were assessed before treatment, on 8<sup>th</sup> day and on 29 days of the study period. It was noted that during the course of, following the first *Agnikarma* setting pain, stiffness, of tenderness and restricted movements began to decrease. The last follow-up revealed a considerable drop in pain, stiffness tenderness and restricted movements of affected shoulder joint. Study concluded that *Agnikarma chikitsa* is effective in relieving the pain, stiffness and increase the range of motion in condition of frozen shoulder. Hence, advised as an opd technique, considering its efficiency and safe therapy regimen for frozen shoulder. <sup>(8)</sup>

#### *Agnikarma*- Ear pinna keloid

The objective of the research was to see whether *ksharsutra* ligation as opposed to surgicle excision, is more effective method for removing ear pinna keloid and whether *agnikarma* is effective in treating the condition after the ear pinna keloid has been removed. There were 20 patients total who were enrolled in this study, *Ksharsutra* was used to excision keloid in Group A, while *Agnikarma* and *Ksharsutra* were used in that order in Group B. By the 9<sup>th</sup> day of surgery, the Keloids of every patient felt off completely. Each 3<sup>rd</sup> day *Ksharsutra* was altered. Group B patients received additional *Agnikarma* treatment at this time and lesion heals on at its own when keloids have fallen off. after 3 years of procedure group B show positive result, no relapses. This leads to the conclusion that *agnikarma* after *ksharsutra* treatment significantly reduces the probability of relapsing ear pinna keloids. <sup>(9)</sup>

#### *Agnikarma*- Cervical erosion

A female patient of age 31 years old diagnosed as a case of cervical erosion. Her history included cervical erosion which was treated with electrocauterization three times, oral medication and antifungal ointment from private hospital. Every intervention relives symptoms and occasionally prevents recurrence. Base on findings it can be concluded that in comparison to electric cautery cauterization, *Agnikarma* by *chadrodaya varti* is far more effective in managing cervical erosion in various aspect. <sup>(10)</sup>

#### *Agnikarma* - *Kati Sandhigata Vata* (lumbar spondylosis).

Total 36 patients of *Kati sandhigatavata* were enrolled for study and distributed into two distinct groups. Group A, 16 patients were selected for *agnikarma* with the help of *Panchadhatu shalaka* in demarcated site of lower back then *haridra* powder dusting was done. Interval of procedure was 7 day and duration of treatment was 25 days. Group B total 16 patients were selected for *Raktamokshana* by modified *Shruna yantra*. Interval for procedure was 15 day and duration of treatment was 21 days. *Agnikarma* was shown to be more effective than *Raktaomokshana* in *Katishoola* (pain in lower back) and *Katisuptata* (numbness in lower back), *Akunchan prasadan pravrutti savedana* but *Raktamokshana* gave more relief on *Katistambha* (stiffness in the lower back). There were no adverse reactions to therapy found during or after treatment in either group. Following the treatment, no alterations were found in plain film radiography. <sup>(11)</sup>

#### *Agnikarma* - *Janu Sandhigata Vata* (Osteoarthritis of Knee Joint)

The purpose of this study was to compare the efficacy of oral indigenous drugs and *Agnikarma* with *Rajat Shalaka* in *Janu Sandhigatavata*, which can be associated to osteoarthritis. (Knee Joint). Total 30 patients of *Janu Sandhigatavata* was selected and distinguished into two group. Patients in Group A were given an oral indigenous medication, while those in Group B were given

Agnikarma with Rajat Shalaka. Comparatively both groups have significant result in parameter especially Pain and flexibility of movement in Agnikarma treated group showed extremely good results. Pippali and Indravaruni, when combined with Jaggery as Anupana, have a good capacity to alleviate the symptoms of O.A. of the knee joint. Modified adoption of *Agnikarma* with *Rajat Shalaka* has given very promising result specially by decreasing pain which is one of the cardinal features of *Janu Sandhigatavata*. A longer study period could be used to determine the long-term impact of the therapeutic effect. <sup>(12)</sup>

#### *Agnikarma -Kadar*

A 25-year-old male patient was diagnosed with corn at the dorsal aspect of his right sole in this single case study. Agnikarma is the method of treatment for this condition. Patient had history of corn at right sole before 2 years and excision was done. But after ten days, he started to have excruciating discomfort in his right planter area, which spread to the medial portion of his foot. No history of direct injury at that site but patient used tight shoes. Total 3 setting at an interval of 6 days was done. After 1<sup>st</sup> setting of *Agnikarma* pain due to corn decreased, on 2<sup>nd</sup> setting pain was diminished and 3<sup>rd</sup> setting pain was minimal. The patient experienced a decrease in discomfort and swelling after 12 days. Agnikarma is a drugless method of treating corn pain. Instead of surgical excision, *Agnikarma* therapy is more satisfactory in the management of corn. There are no problems, adverse effects, or recurrences. In terms of the quantity of post-excision dressings, it is less expensive than surgical excision. <sup>(13)</sup>

#### *Agnikarma - Knee Osteoarthritis.*

There are therapies in several alternative systems of medicine that follow comparable theories and technique. This study gathered various studies on the use of *Agnikarma* in osteoarthritis. It has been determined that Agnikarma's effect in knee osteoarthritis are not caused by a single mechanism. *Agnikarma* is effective in treating Knee Osteoarthritis because of number of factors including release of endorphins, the local vasodilatation, increase in tissue extensibility and creation of heat shock proteins. Additional research is necessary to test these theories and determined the long-term effects of *Agnikarma* in Knee Osteoarthritis. <sup>(14)</sup>

#### *Agnikarma- Vatakantaka (Calcaneal Spur)*

In this study *Vatakantaka* pain can be relieved by *Agnikarma*. *Samprapti* of *Vatakantaka* is occurred due to variation of *vata dosha* by placing of foot improperly or over exertion of foot produce ankle pain. The Ushna, Tikshna, Sukshma, and Ashukari gunas of Agni eliminate Strotavarodha, calm vitiated vata and kapha doshas, and improve blood flow to the afflicted area. So, it is also best for treatment of *Vatakantaka*. From this review, it can be concluded that *Agnikarma* can be used for the management of pain in *Vatakantaka*. Future studies can be conducted on large number of patients of calcaneal spur heel pain to establish its efficacy and mechanism of action. <sup>(15)</sup>

#### *Agnikarma - Chronic Low Back Pain*

Total 60 patients of Chronic low back pain split up into two groups. Group (A) consisted of 30 patients who received oral Diclofenac sodium 50 mg eight hours a day for three days, as well as pre- and post-treatment reviews. Group (B) 30 patients treated with *bindu agnikarma* with *panchadhatu shalaka* maximum 4 setting. The study found that agnikarma therapy is excellent for treating pain. When used to treat chronic low back pain, it performed better than the traditional NSAID, diclofenac sodium. <sup>(16)</sup>

#### *Agnikarma -cervical spondylosis.*

In this clinical research work total 27 Cervical spondylosis patients were split into two groups, A group and B group, at random. 12 patients and 15 patients register in both groups respectively. Four setting of *Bindu* type of *Agnikarma* with the help of *Panchadhatu*

*shalka* was carried out in Group A and in group B *Ajmodadi vati* 3gm BD with lukewarm water was given for 1 month. Result of this study shows that *Agnikarma* has better in relieving pain and neck stiffness as compare to *Ajmodadi vati*.<sup>(17)</sup>

#### *Agnikarma - Gridrasi*

The purpose of this study was to evaluate the effectiveness of *siravedh* and *agnikarma* in the treatment of gridrasi. Thirty patients in all were randomly assigned to two groups: nineteen received *agnikarma* treatment, and eleven received *siravedha* treatment. *Agnikarma* was performed to the lumbosacral spine and Achillis tendon with the help of *Panchadhatu* Shalaka. With the use of Scalp vein No. 20, four angulas below Janu Sandhi, Siraveda was performed (knee joint). Every patient received pills containing placebo starch. Both procedures were adopted 7 days interval upto 1 month. Follow up was taken after 1month. Both treatments show highly significant result in *Ruja, Stambha, Suptata, Spandana, Tandra, Gaurava, Sakthinikshepanigraha* (restricted movement of thigh) in both groups. While Siravedha could not find any results in terms of muscle power, *Agnikarma* discovered a highly substantial increase in the muscular power of hip flexion, ankle dorsiflexion, and great toe extension. In *Agnikarma* group lab investigation shows insignificant result but in *siravedha* significant effect was seen on Hb%. Based on the results of this study, *Agnikarma* and *Siraveda* are simple, affordable, safe, and effective treatments for Ghridrasi; nevertheless, *Agnikarma* is more effective than *Siraveda* in treating Ghridrasi symptoms.<sup>(18)</sup>

#### *Agnikarma (cauterization) - Gridrasi (sciatica)*

The intent of this study was to evaluate the impact of bindu *agnikarma* in Gridrasi. Total 10 patients of *Gridrasi* fulfilling the criteria of classical features of *Gridrasi* were included. *Bindu Agnikarma* was done at *kati, uru janu jangha* region after that aloe vera pulpa was applied. it was done at two setting. Prior to therapy and nine days after the procedure was finished, patients were evaluated. This study shows promising result in radiating pain, stiffness, and improvement in standing and walking time.<sup>(19)</sup>

#### *Agnikarma - chronic anal fissure*

Total 30 patients of chronic anal fissure were selected on the basis of simple randomization method and divided into two groups. Group I(Trial) were treated with *agnikarma* where partial sphincterotomy was done with electric cauter through the fissure bed. Group II(Control) were treated with lord procedure of anal dilation. Patients were given Sitz bath and antiseptic sterile dressing twice a day till ulcer healed. Patients were asked to follow up on 7<sup>th</sup> 14<sup>th</sup> 21<sup>st</sup> day. The applications of *agnikarma* causes debridement with local asepsis of fissure bed without causing extensive damage to anal sphincter promoting formation of healthy granulation tissue with relaxation in sphincter spasm and thus causes healing. This concluded that *agnikarma* is non-recurring treatment in the management of chronic anal fissure.<sup>(20)</sup>

#### *Agnikarma- Sandhigata vata (janusandhigata vata)*

The aim and objective of this study was to evaluate the efficacy of *agnikarma* and *swedana* in *sandigatavata* comparatively. Total 30 *janusndhigata vata* patients were screened and divided into two group. Patients in Group A (15) treated by *agnikarma* in single setting and Group A(15) treated by *swedana* follow up at 7<sup>th</sup> and 14<sup>th</sup> day. Both *agnikarma* and *swedana* enhance local temperature and like similar but their procedure and mode of action is different. Patients were asseseed *sandhishula, sandhistambha, sandhishotha, sandhi atopa* parameters in grade. This research work concluded that both procedures were found to be effective in *janusandhigatavata*. *Agnikarma* with *lohashalaka* are effective in *vedana* (pain) (stiffness) and *stambha* while *dashamoola nadiswedana* is more effective in *sandhishotha* of *janusandhigatavata*. *Agnikarma* gives instant relief in symptom while *nadi sweda* gives gradual effect.<sup>(21)</sup>

*Agnikarma* -Trigger finger

In this case study Trigger finger was treated by *agnikarma*. Trigger finger is commonly seen in profession which involves frequent movement of fingers i.e typist, surgeon, barbour, farmer etc. As per acharya Sushruta reference of trigger finger can be correlated with *snayu, asthi, sandhi, ashrit vikara* that *agnikarma* was carried out for 30 days in this period 4 setting of *agnikarma* was administrated at interval of 7 days giving a complete relief of symptom. <sup>(22)</sup>

*Agnikarma* - Sandhigata vata (cervical spondylosis)

Aim and objectives of this study was to assess the efficacy of *agnikarma* in *sandhigata vata*. To assess the efficacy of *nirgundi* and *shrigruyukta trayodashang guggulu* in *sandhigata vata*. Cervical spondylosis patents divided into two groups. A group 18 patients treated by *agnikarma bindu* type of *dahan vishesha* was made at the most painful area of the neck. Total 4 setting with interval of 7 days for one month duration. B group *nirgundi* and *shrigruyukta trayodashang guggulu* was given 1 gm with lukewarm water for 1 month. Result of this study was significant relief found in *grivashula, griva stambha, shirshula, chimchimayana hasta* in *agnikarma* treated group and good result in *nirgundi* and *shrigruyukta trayodashang guggulu* <sup>(23)</sup>

*Agnikarma* - *Manyagata vata* (cervical spondylosis)

Total 50 patients of cervical spondylosis selected for this study. *Agnikarma* done with the help of device which is specially designed probe *trikurchak* type *ropya shalaka* 2 setting with constant temperature (60°C) throughout the procedure in 15days interval. The probe is kept in contact with skin for duration of 10 seconds at most painful site. *Ashwagandha ghanavati* 250mg was given twice a day with warm water after meal for 60 days only adjuvant to *agnikarma*. The study shows that *agnikarma* with *Ropya shalaka* and *ashwagandha ghanavati* were relieved symptoms of *manyagatvata* like pain, stiffness, flexion, extension, lateral movement and tingling sensation. <sup>(24)</sup>

*Agnikarma Chikitsa*- Technological Innovations Regarding *Agnikarma*

This research work concluded that local disorders produced by *Kapha dosha* or by *Vata dosha* are beneficially treated by *Agnikarma chikitsa*. *Agnikarma* the *Agni* from the stove or gas flames is taken in the *shalaka* which becomes red *hot*. Then this *Agni* (Heat) is transferred from the *shalaka* to the *dusya-dhatu* (skin). The time taken for this transfer of heat is two to three seconds. The sittings of *Agnikarma* chikitsa depend upon the extent and chronicity of the disease. The sitting of *Agnikarma* on the same area of the skin should be done after one week. In the chronic disease, more sittings of *Agnikarma* are required. In the same way, if the extend of the disease is more, the sittings of *Agnikarma* are needed more. The *Kaphaja* pain (*Kandu*) or *Vataja* pain (*Toda*) of the disease are relieved within hours after the sitting of *Agnikarma chikitsa*. But some cases use to show recurrence of pain after two or three days of the treatment. These cases were having *saravadehika* (whole body) *dosha* predominance. These cases were treated by more sittings of *Agnikarma chikitsa* and in few cases *Sodhana Chikitsa* (*Pancakarma*) and *Sanshamana chikitsa* (anti-*doshika* drugs) were also done. <sup>(25)</sup>

**Conclusion**

After reviewing various research article, *agnikarma* has encouraging result in the management of pain. *Agnikarma* deals with the action of thermal energy in the human body. In modern medicine variety of pain killers are available but it has side effect if taken for long duration. To overcome this side effect *Agnikarma* is simple, safer and cost-effective treatment. Researchers has scope to do their research study with different materials of *agnikarma* in various diseases.

## References

1. Sushruta, Sushruta Samhinta, sutrasthana 12/3, edited by Dr. Keval Krushna Thakara, Edition:reprint 2020;119.
2. Sushruta, Sushruta Samhinta, sutrasthana 12/4, edited by Dr. Keval Krushna Thakara, Edition:reprint 2020;120
3. Bali Yogita M R, “Agnikarma and katibasti in the management of gridhrasi (sciatica): a comparative study” 4th world ayurveda congress and arogya expo 2010;9(13):316
4. Shekokar Ananta, Borkar Kanchan, “ A comparative study of agnikarma & ajmodadi vati in the management of ghridhrasi w.s.r.to sciatica”. International journal of ayurvedic medicine 2012;3(3):162-169
5. Ravishankar A.G, Rao ravi s, Krishnamurthy M S, et al, “A scientific and analytical approach on 'snigdhaagnikarma'. International Journal of Research Ayurveda pharma. 2013;4(6):851-853
6. Mahanta Vyasdeva, Dudhamal Tukaram, Gupta Sanjay, “Management of tennis elbow by agnikarma.” Journal of ayurveda and integrative medicine 2013;4 (1): 45- 47
7. Shekokar Ananta, Borkar Kanchan, “Role of agnikarma with electric cautery in charmakila w. S. R. To wart- a case discussion” International journal of ayurveda and pharma research 2014;2(3): 104-107
8. Hasan moghal, Yadav sanjeev, “Clinical evaluation of effect of agnikarma in management of frozen shoulder”. Punarnav 2014; 2(1): 77-84
9. Salunke amrut, Nakanekar amit, Lahankar madhukar, kolpe hema, borkundwar shital. “A clinical study for the management of ear pinna keloid by ksharsutra and agnikarma.” International journal of ayurveda and pharma research 2014;5(3):261-26
10. Verma Anjali, Kumar Suresh,” Role of Chandrodaya Varti Agnikarmain the management of cervical erosion.” Journal of Ayurveda and holistic medicine 2016;4(2):80-87
11. Joshi Foram, Mahanta Vyasdeva, et al, “Effect of *agnikarma* (therapeutic heat burns) and raktamokshana (therapeutic bloodletting) in the management of kati *sandhigata vata* (lumbar spondylosis).” AYU 2019;1(40):79-88
12. Puri shubham, Savadi b. S., “A comparative study on agnikarma and indigenous drugs in the management of janu sandhigata vata w.s.r. To osteoarthritis of knee joint.” international journal of ayurveda and pharma research. 2019;7(1):39-44.



- 
13. Sarmaha Himani, Bhatta Namrata et al, "A case study on pain management in kadam through agnikarma." *Journal of ayurveda and holistic medicine*, 2020; 3(1):21-25
  14. Sachi Anoop, Thomas T, "Review on the mode of action of agnikarma in knee osteoarthritis." *Journal of research in Ayurveda pharma* 2020;11(6):95-97
  15. Haidar Md, Ansari md tanzil," Role of agnikarma in the management of vatakantaka (calcaneal spur): a review. " *International ayurvedic medical journal* 2020:122-126
  16. Kalita Pangkaj, Barman Niten, et al, "Study on agnikarma in pain management w.s.r. To chronic low back pain." *International research journal of pharmacy and medical sciences* 2021; 4 (5): 8-12
  17. Sehagal Umesh, Rajgopala Manjusha et al, "Role of Agnikarma and Ajmodadi vati in the management of Sandhigata vata w.s.r. to cervical spondylosis." *Ayu* 2009;30 (3):345-349.
  - 18 . Pandao Pradip, Mrunali Morey, "Comparative clinical study of siraveda and Agnikarma in the management of Gridrasi(Sciatica)". 2016; 3(127):301-312
  - 19 . Lohit B.A, Prasad B.S. "Effect of Bindu agnikarma(cauterisation) in Gridrasi(sciatica) -A Clinical study." *Aryavaidyan* 2010; 23(4):226- 230
  20. Tripathy R N, Otta SP, Prashant K, "Efficacy of Agnikarma in the management of Chronic anal fissure." *Aryavaidan* 2011;24(3):181-187.
  21. Mohasin Khadegon, Udayshankar, Harshvardhan, mohamad yunus, "Management of sandhigata vata w.s.r to janusandhi by Agnikarma and Swedana- A comparative clinical study' *Aryavaidam* 2014; 28 (1): 452-56.
  22. Shekokar Anantkumar, Borkar Kanchan "Role of Agnikarma in the management of Trigger finger" *International Journal of Ayurveda and Pharma* 2014; 2(1):112-115
  23. Meena Mukesh kumar, Kushwaha HK, "A Clinical evaluation of Agnikarma in Sandhigata vata w.s.r. to Cervical spondylosis." *Journal of Ayurveda*, 2008;2(40) :51-56
  24. Dwevedi Amarprakash, Pathrikar Anaya, et al, "A clinical study to evaluate efficacy of agnikarma and Ashwagandhaghana Vati in the management of Manyagatavata w.s.r. to Cervical Spondylosis." *International Journal of Ayurvedic Medicine*, 2018;9(3):208-213.
  25. Gupta P D, "Agnikarma chikitsa- Agnikarma cikitsa- technological innovations regarding agnikarma salaka, samyaka dagdha vana and useful method of agnikarma chikitsa," *Journal f research in Ayurveda Science* 1992; X/v, (3-4):25-36.