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# EFFECT OF AGNIHOTRA HOMA ALONG WITH ITS ASH IN MANAGING ADVERSE EFFECT OF RADIOTHERAPY AND CHEMOTHERAPY IN CANCER TREATMENT

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**Abstract**

Cancer is a grave disease for which no definite cure has been found. The available treatments such as chemotherapy and radiotherapy have cytotoxic effects, which are hazardous to the normal cells of the patient, causing many unnecessary effects. This further leads to complications of the therapy, impaired health and deterioration of quality of life, resulting in mandatory stoppage of the treatment. In the present study, the effect of *Agnihotra Homa* along with its Ash is given for managing adverse effect of Radiotherapy and chemotherapy in cancer treatment. A total of 43 cancer patients were registered in this trail, 40 patients completed the trail and were divided into two groups, group A and group B. In group A, the patients were treated with *Agnihotra homa* and its ash along with radiotherapy and chemotherapy, while in Group B only radiotherapy and chemotherapy were given, as the control group. After the clinical trail assessing the results, it was observed that *Agihotra homa* and its ash gave better results in controlling the some of the adverse effect of chemotherapy and radiotherapy in comparison with the control group. Therefore, *Agnihotra homa* has proved to be effective therapy to increase the quality of life and protecting patients from the adverse effects of chemotherapy and radiotherapy.

**KEYWORDS:** Cancer, *Agnihotra homa*, Chemotherapy, Radiotherapy

## Introduction:

Cancer is most deadly disease of the 21st century and is spreading further with increase in incidence. It has been reported as the second largest non – communicable disease after ischemic heart disease.[1]

In *Ayurveda* cancer can be co-related to *Arbuda* and *Granthi* .It has been explained in detail in *Mamsa Pradoshaja Vikaras*[2]. *Ayurveda* can be helpful in the management of cancer in many ways such as prophylactic, palliative, curative, supportive and undoubtedly it helps to improve the quality of life

Cancer is a major cause of morbidity and mortality in the world. The international agency of Research and Cancer GLOBOCON project has predicted that India's Cancer burden will nearly double in the next 20 years, from slightly over a million new cases in 2012 to more than 1.7 million by 2035[3].

Extensive research has produced many new healing methods and hundreds of medications for the management of cancer. Surgical excision is the oldest and most tested therapeutic modality for its treatment. Radiation therapy is effective in controlling a variety of malignant tumours and is a component in the management of about half of all patients with cancer.

Cancer chemotherapy involves the use of cytotoxic drugs and hormones. The clinically useful anti – neoplastic agents are more toxic to the sensitive malignant cells than to the normal cells of the tumour – bearing host.[4]

Acute radiation largely affects cell renewal tissues – skin, oropharynx, mucosa, small intestine, rectum, bladder and vaginal mucosa.[5]

Radiation therapy can cause anorexia through multiple mechanisms. [6]

Chemotherapy has issues such as poor quality of life, poor performance status, worsening of mood, imbalance in blood components along with several side effects like nausea, vomiting, fatigue etc.

To overcome these side effects an adjuvant therapy is needed to be explored which enhances patient's quality of life, improves physical and psychological status and mainly reduces the adverse effects of these therapies.

This can be done through *Daivavyapashraya Chikitsa* which is considered as *Vyadhipratyanika Chikitsa.*

Among *Trividha Chikitsa, Daivavyapashraya Chikitsa* has been told first because of its power to cure the disease instantaneously. *Homa* is one among the various *Daivavyapashraya Chikitsa*[7].

*Agnihotra homa* is the simplest form of *Homa* performed in many countries all over the world. It is found that far infrared radiations invoked during sunrise and sunset and that of *Agnihotra homa* resonate to generate a huge amount of vital energy useful for life processes.[8]

The intake of its ash which has medicinal properties helps to reduce the side-effects of Chemotherapy and Radiotherapy.

Therefore in the present study an attempt has been made to reduce the adverse effects and improve the quality of life by enhancing *Satva guna* of cancer patients through *Agnihotra homa.*

**Materials and Methods[9]**

**Selection of patients**

Fourtry patients fulfilling the diagnostic criteria of carcinoma ( under treatment of radiotherapy and Chemotherapy) were randomly selected from the OPD and IPD of Alva's Ayurveda Medical College and Hospital, Moodbidri, Alvas Health center Moodbidri, Vishwaradhya Cancer Hospital Davangere and, other referrals.

**Ethical clearance**

The institutional Ethical Committee of the Alvas Ayurveda Medical College and Hospital, Moodbodri, Dakshina kannada, Karnataka, approved the study. An informed written consent was taken from each patient willing to participate before the commencement of the trail. The patients were free to withdraw their name from the study at any time without giving any reason.

**Inclusion Criteria:**

- Patient who agreed to participate in the clinical trial and who will give their written consent.
- Diagnosed first 3 stages of carcinoma undergone radiotherapy or chemotherapy or both.
- Patients with age group between 16 to 60 years.

**Exclusion Criteria:**

- Those patients who were on palliative course of treatment in 4$^{th}$ stage of carcinoma.
- Patients who have undergone recent surgeries

**Drug collection**

- Agnihotra homa kit and its raw materials collected collected from Vishwa Agnihotra Foundation Shivapuri, Akkalkot, Maharashtra.

**Method of performing Agnihotra homa**

*Agnihotra Homa* will be performed by patients in their house two times per

day at sunrise and sun set time and *bhasma* is used as a medicine.

**Procedure:**

The process of offering two oblations by two pinch of rice smeared with cow's ghee into fire prepared out of dried cow dung in a pyramid shaped copper vessel exactly at local sunrise and sunset times alongside chanting of two specific Sanskrit mantras is called *Agnihotra*.

**Materials:**

- Copper pyramid
- Organic rice
- *Goghrita*
- *Gomaya* (Dried cow dung)

**Preparation of the *Agnihotra* fire:**

- Place a flat piece of cow dung at the bottom of the copper pyramid. Arrange pieces of dried cow dung, which have been coated with ghee, in the pyramid in such a manner that allow easy passage of air. Apply a little ghee to a small piece of cow dung and light it. Insert this lighted piece of cow dung in the pyramid. Soon all the dung in the pyramid will catch fire. Take a few grains of organic rice in a dish or in your left palm and apply a few drops of ghee to them. Exactly at sun rise utter the first mantra and after the word *Swaha* add a few grains of rice to the fire. Utter the second mantra and after the word *Swaha* add the second portion of rice to the fire. This completes morning *Agnihotra*. At sunset do the same by using evening mantras. This completes evening *Agnihotra*.

**Agnihotrahoma mantras:**

At sunrise;

1. *Sooryaya Swaha SooryayaIdam Na Mama*

*2. Prajapataye Swaha PrajapatayeI dam Na Mama*

This completes *Agnihotra* at sunrise.

At sunset

1. *Agnaye Swaha Agnaye Idam Na Mama*

*2. Prajapataye Swaha Prajapataye Idam Na Mama*

This completes *Agnihotra* at sunset.

**Duratiom**

45 days

**Grouping**

The patients were divided into two groups using random sampling method.

Total 40 patients registered and randomly divided into two groups

Group A: *Agnihotra Homa* and its ash was given along with radiotherapy and chemotherapy

Group B: Control group of patients only on conventional modern medication, where 22 patients were registered 20 patients completed the full course of treatment.

All patients under the two groups received modern medication Radiation/ Chemotherapy as per the need.

**Assessment criteria[10]**

Assement of the effect of Agnihotra homa therapy was carried out on the basis of the improvement and occurrence of known adverse effcts, as per guidelines for adverse effects by National cancer institute, Oncology group11 as shown in table 1 and 2

**Table 1**

| Symptoms | Criteria for assessment | Grade |
|---|---|---|
| Nausea and vomiting | None | 0 |
| | Able to eat and one episode in 24 hours | 1 |
| | Oral intake significantly decreased, two to five episodes in 24 hours | 2 |
| | No significant intake, requiring IV fluids, > 6 episodes in 24 hours | 3 |
| Mucocitis | None | 0 |
| | Erythema of the mucosa | 1 |
| | Patch pseudomembranous reaction | 2 |
| | Confluent pseudomembranous reaction | 3 |
| | Necrosis of deep ulceration may include bleeding not induced by minor abrasion | 4 |
| Fatigue | None | 0 |
| | Increased fatigue over baseline, but not altering normal activities | 1 |
| | Moderate or difficulty performing some activities | 2 |
| | Severe or loss of ability to perform some activity | 3 |
| | Bedridden or disabling | 4 |

**Table 2**

| Associated symptoms | Criteria for assessment | Grade |
|---|---|---|
| Alopecia | Normal | 0 |
| | Mild hair loss | 1 |
| | Moderate | 2 |
| Xerostomia | None | 0 |
| | Slightly thickened saliva, may have slightly altered taste | 1 |
| | Thick, ropy, sticky saliva, markedly altered taste, alteration in diet required | 2 |
| | Moderate alteration in saliva | 3 |
| | Acute salivary gland necrosis | 4 |
| Tastelessness | Normal | 0 |
| | Slightly altered | 1 |
| | Markedly altered | 2 |
| Skin reaction | None | 0 |
| | Faint erythema or dry desquamation | 1 |
| | Moderate to brisk erythema or patchy, moist desquamation, mostly confined to skin folds and creases, moderate edema | 2 |
| | Confluent moist desquamation > 1.5 cm diameter and not confined to skin folds; pitting edema | 3 |
| | Skin necrosis or ulceration of full-thickness dermis, may include bleeding not included by minor trauma or abrasion | 4 |

**Statistical Analysis:**

The effect of the *Agnihotra homa* and its ash has been critically analysed by the statistical data. Descriptive Statistical Data which includes Mean, Standard Deviation, Standard Error, t-value, p-value were calculated for all the variables. Post therapeutic effect of the drug administered was assessed by paired 't' test. Comparative study of each parameter of either groups were assessed by unpaired 't' test. For all tests, a 'P' value of < 0.05 is considered as the statistical significance level for obtaining absolute result. The over all assessment of the effect of therapy was made on the basis of the following criteria:

| Percentage of cure | Interpretation |
|---|---|
| 100% | Complete relief |
| 75 – 99% | Marked relief |
| 50 – 74% | Moderate relief |
| 24 – 49% | Mild relief |
| 0.1 – 24% | Minimal relief |
| 0% | No relief |
| -0% | Worsen |

**Observations**

43 patients were registered for the study, out of which 3 were drop outs. 40 patients completed the trial and the observation done on those 40 patients are as follows:

**Age:**

In this open clinical trial 40 patients were grouped into 4 age Groups. Among them, maximum of patients, i.e. 47.5% belonged to the age group 51-60 years. 37.5% belonged to the age group 41-50 years.10% belonged to the age group 31-40 years, as well as 5% belonged to 20-30 years.

This shows that the incidence is high as age advances because most of the cancer develops over 55 – 60 years.

**Gender:**

Majority of patients i.e. 62.5% were female, 37.5 % were male. This may be due to high incidence of Breast cancer and cervical cancer.

**Religion:**

It was observed in the study that 95% were Hindus, 5% were Christian, 5% were Muslims.

Majority were Hindu which shows the dominance of Hindu population in the region.

**Marital status:**

Majority of patients i.e. 97.25% were married and 2.5% were unmarried. The age group selected for the study was 16-60 years and the incidence of middle aged population was more, hence majority are married.

**Education:**

32.5% of patients had completed primary education, 17.5% uneducated, 17.5% High school, 17.5% PU, 15% graduation. This only indicates the educational status of the region and does not influence the occurrence of the disease.

**Occupation:**

50% were homemakers, 30% labours, 10% 0fficials, 5% businessmen, 5% unemployed. In this study the female population was more, this could be the reason for majority of them being homemakers.

**Socio- economic status:**

Majority of patients belonged to middle class, i.e. 80%. 17.5% had a poor class and 2.5% had a rich background. This indicates the socioeconomic status of the people in and around the region where the trail was conducted. Maximum cancer patients belong to middle class.

**Dietary habit:**

90% of patients were consuming mixed diet and 10% were vegetarians. According to some recent researches most of the non-vegetarian food may leads to cancer.

**Family history:**

As per this study, it is observed that 65% had no family history and 35% had family history. This shows that there is relevance of family history in the development of cancer.

**Discussion on *DashavidhaPareeksha:***

***Prakruti*:**

Majority of the patients were of *Vata kapha Prakruti*. i.e, 45%, 32.5% were *Pitta Kapha*, 22.5% were *Vata Pitta Prakruti*. Fundamentally it can be said that *Vata* causes cell division and *Kapha* causes cell nourishment and maturation, this might be the reason for more prevalence of cancer in *Vata-Kapha Prakruti* individuals.

***Satwa*:**

70% of patients were of *MadhyamaSatwa*, 17.5% *Avara*, 12.5% *Pravara.*

***Abhyavaharana Shakti*:**

Majority of patients had *Avara Abhyavaharana Shakti* i.e. 70%, 22.5% patients were *Madhyama*, 7.5% patients had *Pravara Abhyavaharana Shakti*. This may be due to disease progress and adverse effects of Chemotherapy and Radiotherapy.

***Jarana Shakti*:**

Majority of patients had *Avara Jarana Shakti* i.e, 70%, 20% patients were *Madhyama*, 10% patients had *Pravara Jarana Shakti*. This may be due to Agnimandya in patients of cancer.

***Vyayama Shakti:***

70% of patients had *Madhyama Vyayama Shakti*, 22.5% had *Avara* and 7.5% had *Pravara Vyayama Shakti*. This shows that even though patients were suffering from fatigue, they were capable of doing normal activities.

***Agni*:**

55% of patients were of *Mandagni,* 37.5% were *Vishamagni* and 7.5% were of *Teekshnagni.* This shows the relation between disease and *Agnimandya.*

***Koshta*:**

As per the study, it is observed that 57.5% were *KruraKoshta*, 37.5% were *Madhyama Koshta,* 5% were *Mrudukoshta*. This might be because of *Agnimandya*.

***Nidra:***

87.5% of patients had disturbed sleep, 12.5% had sound sleep. This might be due to disease condition and also because of Chemotherapy.

**Mental Stress:**

47.5% of patients had mild stress, 40% had moderate stress and 7.5% had severe stress. This shows the relation between mental stress and cancer.

**Habits:**

25% of patients had the habit of tobacco chewing, 12.5% had alcohol and10% had smoking habit. This shows the relation between habits and cancer.

**Results:**

**Effect of Agnihotra Homa**

Agnihotra homa and its Ash showed significant results on fatigue (81.48%), Tastelessness (75%), and Xerostomia(23.52%) and Nausea (58.82%), Vomiting(58.30%), Mucocitis(16.16%), and Alopecia increased after the treatment

.

**Table:3**

| Symptoms | BT | AT | MD | % | SE | P |
|---|---|---|---|---|---|---|
| Nausea | 0.85 | 0.35 | 0.50 | 58.82 | 0.13 | <0.002 |
| Vomiting | 0.60 | 0.25 | 0.35 | 58.30 | 0.15 | <0.031 |
| Mucocitis | 0.30 | 0.25 | 0.05 | 16.66 | 0.05 | <0.33 |
| Fatigue | 1.35 | 0.25 | 1.10 | 81.48 | 0.12 | <0.001 |
| Tastelessness | 1.2 | 0.30 | 0.90 | 75 | 0.14 | <0.001 |
| Alopecia | 0.75 | 1.30 | -0.55 | 73.33 | 0.17 | <0.004 |
| Xerostomia | 0.85 | 0.20 | 0.65 | 23.52 | 0.16 | <0.001 |
| Skin reaction | 0.25 | 0.10 | 0.15 | 0.48 | 1.37 | <0.186 |

**Control Group**

On treatment with Radiotherapy and chemotherapy, the symptoms like Nausea, Vomiting, Mucocitis, Tastelessness, Skin reaction decreased and Fatigue, Alopecia and Xerostomia increased after 45 days.

**Table: 4**

| Symptoms | BT | AT | MD | % | SE | P |
|---|---|---|---|---|---|---|
| Nausea | 0.80 | 0.45 | 0.35 | 43.75 | 0.14 | <0.090 |
| Vomiting | 0.60 | 0.45 | 0.35 | 25.00 | 0.16 | <0.379 |
| Mucocitis | 0.30 | 0.25 | 0.10 | 33.33 | 0.16 | <0.54 |
| Fatigue | 1.25 | 1.45 | -0.20 | -16 | 0.15 | <0.214 |
| Tastelessness | 0.90 | 0.95 | 0.05 | 5.55 | 0.08 | <0.572 |
| Alopecia | 0.95 | 1.80 | -0.85 | -89.42 | 0.182 | <0.001 |
| Xerostomia | 0.80 | 0.85 | -0.05 | -6.25 | 0.13 | <0.716 |
| Skin reaction | 0.10 | 0.05 | 0.05 | 50 | 0.05 | <0.33 |

**Table: 5**
**Effect of total therapy**

| | RT+CT+ Agnihotra homa | | GROUP B Control group | |
|---|---|---|---|---|
| | No of patients | % | NO of patients | % |
| Worsen (-0%) | 0 | 0 | 10 | 50 |
| No relief (0%) | 1 | 5 | 4 | 20 |
| Minimal relief (1 – 24%) | 0 | 0 | 2 | 10 |
| Mild relief (24-49%) | 6 | 30 | 4 | 20 |
| Moderate relief (50-74%) | 11 | 55 | 0 | 0 |
| Marked relief (75-99%) | 2 | 10 | 0 | 0 |
| Complete relief (100%) | 0 | 0 | 0 | 0 |

## Discussion

### *Agnihotra homa*

This *Agnihotra homa* is selected from the Vedic literature. In Vedas it is mentioned that *Homa* widely used for preventing and curing various diseases and ailments, also for improving and

maintaining immunity for individuals as well as masses. Many research works has been carried out on *Agnihotra homa*, its effect on human body and mind, environment and agriculture.

Different types of energy systems are available. According to the first law of thermodynamics, we can convert one form of energy into another form. Out of the various forms of energy, sound and heat are important with regards to *Homa*. Heat energy is obtained from *Homa* fire and sound energy from the *Mantras*. Heat generated from *Homa* fire, will be converted into different forms of energy. The electromagnetic waves generated, helps in transmitting the energy, at cosmic level and the desired sonic signals stored in the *Mantras*, which are chanted during the process of sacrificing the special materials in the fire.[11]

Tremendous amounts of energy is generated during the *Agnihotra homa* at specific time thereby an aura energy field is created around the area where *homa* is performed. A magnetic type of field is created, one which neutralizes negative energies and reinforces positive energies.[12]

In the *Yajna* therapy, use of cow ghee is advantageous, as through inhalation it might be entered into systemic circulation. According to Indian scripture, the utilization of ghee in *Yajna* is meant to give strength to patient. Furthermore, lipid nanoparticles are shown to enhance drug delivery in modern research findings.[13]

Hence, use of ghee in the *Yajna* therapy might be helpful in the delivery of the phytochemicals present in the medicinal fumes of the *Yajna* therapy.

During the study it was observed that there was relief of mental stress and patients experienced mental peace, had improved quality of sleep. This may be due to the effect of Aroma during the *Homa*. Analysis of literature demonstrates that the components of *Homa* are having a number of volatile oils. Due to high temperature of fire, *Dhooma* emitted during *Homa* enter into the central nervous system through nasal route. As per modern science and ancient texts on medicine, nasal drug delivery systems are best for the diseases related to brain and head.[14]

Chemotherapeutic agents are *Teekshana* and *Ushna Veerya* working as a two edged sword, while

destroying cancerous cell also destroy healthy normal fast growing cells of the gastrointestinal tract, mucous membrane, skin, hair root and so on. Chemotherapy leads to *Pitta dushti* which in turn leads to the manifestation of symptoms such as Mucocitis, Xerostomia, Tastelessness and Skin reactions.

*Agnihotra* ash having *Kshara Guna*[15] has the property of *Tridoshagna* mainly *Pittaghna* due to *Vishesha Kriya Avacharana* i.e. even though it is *Ushna* and *Teekshana* it can be used in *Pitta Pradhana Avasthas*. Hence, it helps in reduction of the symptoms like Xerostomia and Tastelessness caused by adverse effects of chemotherapy.

**Conclusion**

From the present study, it can be concluded that *Agnihotra homa* and its ash gives good results in controlling the some of the adverse effect of chemotherapy and Radiotherapy in comparison with the control group. As a result of performance of *Agnihotra homa* it was observed that patients got improvement in sleep and appetite and reduced mental stress and thereby improved their quality of life.

Along with the patients, this *Agnihotra Homa* acted on the remaining family members by creating the positive energy and the good vibes in the home and in their mind.

This therapy certainly improves the quality of life of the patient and may enhance the life expectancy. In a nutshell, *Agnihotra homa* along with its ash is an effective therapy in managing adverse effect of radiotherapy and chemotherapy in cancer treatment.

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