



Review Article

CONCEPTUAL STUDY ON THE EFFECT OF *MOORVADI CHOORNAM* IN POST CHEMOTHERAPY
COMPLICATIONS

Aswathi G^{1*}, C.K.Krishnan Nair², Prasanth S.R³, Jayakrishnan P.G⁴

¹Assistant Professor (on contract), Department of Agadatantra, Government Ayurveda College, Tripunithura, Ernakulam, Kerala, India.

²Professor and HOD (Retd), ³Associate Professor, Department of Agadatantra, Government Ayurveda College, Trivandrum, Kerala, India.

⁴Assistant Professor, Department of Koumarabhruthya, Nangalil Ayurveda Medical College, Kothamangalam, Ernakulam, Kerala, India.

ABSTRACT

Cancer, a disease which has enormously multiplied over a last few decades, put to suffer tens of millions of people all over the world irrespective of gender, age or colour. The incidence of patients with cancer in India among males was 94.1 per 100,000 and among females 103.6 per 100,000 in the year 2020. 1 in 9 Indians develop cancer during their life time. Now a days, the survival rate of cancer is much better due to vigorous interventions. Chemotherapy, is one of the main tool to kill the rapidly growing cancer cells. i.e., it shows its poisonous effect or simply they are poisons. The effect of chemo drugs on normal cells often causes many side effects. In fact the administration of chemo drugs results in the accumulation of poisons that shows symptoms like hair fall, mouth sores, fatigue, loss of appetite etc. Many complications develop after chemotherapy due to *Dhatuagnimandya* occurring as a result of the accumulation of *Garavisha* (artificial poison). Most of the complications noticed are similar to *Garavisha lakshanas* such as *Pandu*, *Alpagni*, *Durbalatha* etc. *Acharya* mentioned the *yoga "Moorvadichoornam"* with proper *Anupana*, which is specified for indigestion due to *Garavisha* consisting of drugs with many properties to compensate the side effect of chemotherapy. In this paper, a conceptual study is proposed to evaluate the effect of *Moorvadi choornam* in post chemotherapeutic complications. Signs of *Agnimandya* is very clear at the level of *Dhatu*s and this drug combination is expected to act at *Jadaragni* and *Dhatuagni* level.

KEYWORDS: Cancer, *Gara visha*, Chemotherapy, *Moorvadi choornam*.

INTRODUCTION

Cancer is a general term used to describe a group of diseases that are characterised by specific genetic mutations that give rise to loss of control over critical cellular functions. It involves uncontrolled cell growth with the potential to invade or spread to other parts of the body. The medical community accepts that between 5% -10% of all cancers are hereditary. The remaining 90%-95% of cancers are developed because of genetic mutations that arise from a variety of causes such as toxins (tobacco etc), UV radiations, other environmental agents, lifestyle factors such as unhealthy diet, excessive alcohol consumptions etc^[1]. Over the years, the potential of researchers to detect the cancer and treat them is greatly advanced. More people who get cancer live longer and many get cured. Treatment modalities commonly used for managing cancer are Surgery,

Radiation therapy, Chemotherapy, Immunotherapy etc.

Chemotherapy^[2] is the use of drugs to destroy cancer cells. These are also often called as cytotoxic drugs. Chemotherapy treatment varies, consisting sometimes of just one drug or several different drugs, which may be given for a few days or weeks. Cancer cells are abnormal rapidly dividing cells, and chemo drugs kill all new rapidly dividing cells. Unfortunately, the drugs cannot sense the difference between cancer cells and other rapidly dividing cells in our body such as hair follicles, skin, bone marrow, lining of mouth etc. This is what causes the side effects from chemotherapy.

Garavisha^[3], otherwise called *Kritrimavisha* (Artificial poison), explained by *Acharya Vagbhata* is simply the combination of cytotoxic drugs. These cytotoxic combinations not only destroy the fast

growing cancer cells but also rapid growing normal cells. These cytotoxic drugs, on entering our body causes *Agnimandhya* at different levels i.e., at *Jadaragni* and *Dhatuagni* levels. The ultimate result of this *Agnimandhya* is manifestation of certain clinical conditions which is similar to that of chemo side effects. Here comes the importance of a *Yoga* called "*Moorvadichoornam*"^[4] explained by *Vagbhata Acharya* in *Garavisha* which is indicated specifically for correcting *Agnimandhya* caused due to *Garavisha*. This conceptual study aims at evaluating the effect of *Moorvadi choornam* with proper *anupana* in managing post chemotherapy complications.

Conventional Methods in The Management of Cancer

Surgery
Radiation
Chemotherapy
Hormone therapy
Immuno therapy etc

Chemotherapy

Chemotherapy and *Garavisha*

On exposure to Chemo drugs/cytotoxic drugs/*Garavisha*, its toxic effect hinders *Agni* at *Jadara* as well as *Dhatu* level, i.e., it causes *Jadaragni mandhya* and *Dhatu agni mandhya*. This results in the manifestation of *Garavisha lakshanas* or chemo complications.

Chemotherapy is a type of treatment that includes a medication or combination of medications to treat cancer. It strives to cause a lethal cytotoxic event in the cancer cells. Main goal of chemo therapeutic agents are to stop or slow the growth of cancer cells. These cytotoxic drugs are more effective against tumours that have a high growth fraction. Normal cells with high growth fraction are also more sensitive to anti cancerous drugs. The effect of these cytotoxic drugs on normal cells often causes side effects such as Myelosuppression, Immunosuppression, Mucositis, Hair loss etc.

Gara Visha

Gara visha is a superb concept explained by Ayurvedic *Acharyas* which throw light on the changing life style and possibility of exposure of toxins. It is considered as one of the form of *Kritrima visha* (Artificial poison), which is formed by the combination of two or more poisonous or non poisonous drugs.

Chemo Complications	<i>Garavisha Lakshana</i> ^[5]
Myelosuppression- Thrombocytopenia Neutropenia Anemia	<i>Pandu</i>
Mucositis- Giddiness, nausea, Vomiting, Constipation, Diarrhea Reduced appetite, Anorexia Abdominal cramps	<i>Alpagni</i>
Hair loss	<i>Alpagni</i>
Weight loss, Fertility problems	<i>Krisa, Durbhala</i>
Fatigue	<i>Sathatha adhmata</i>
Pain, Peripheral neuropathy	<i>Pratiloma gati of Vayu</i>
Cognitive impairment, Chemo brain	Psychological symptoms due to <i>Ojakshaya</i>

Role of *Moorvadi Choornam*

Ingredients	<i>Anupanas</i>	Indication
<i>Moorva</i> (<i>Marsdenia tenecissima</i> , Asclepiadaceae) <i>Amrita</i> (<i>Tinospora cordifolia</i> , Menispermaceae) <i>Nata</i> (<i>Valeriana wallichii</i> , Valerianaceae) <i>Kana</i> (<i>Piper longum</i> , Piperaceae) <i>Patola</i> (<i>Trichosanthes dioica</i> , Cucurbitaceae) <i>Chavya</i> (<i>Piper chaba</i> , Piperaceae) <i>Chitraka</i> (<i>Plumbago zeylanica</i> , Plumbaginaceae) <i>Vacha</i> (<i>Acorus calamus</i> , Araceae) <i>Mustha</i> (<i>Cyperus rotundus</i> , Cyperaceae) <i>Vidangam</i> (<i>Embelia ribes</i> , Myrsinaceae)	<i>Takra</i> <i>Koshnambu</i> <i>Masthu</i> <i>Rasena cha amlena</i> (<i>bheejapoorra rasa/</i> <i>Kanchi-</i> <i>kadhyamladrava</i> (<i>Mamsa rasa by indu</i>)	<i>Garopahatha</i> <i>pavaka</i>

Properties and Pharmacological Action of Moorvadi Choornam

Drug	Rasa	Guna	Virya	Vipaka	Karma	Indication
Moorva ^[6]	Tikta, Kashaya	Guru, Ruksha	Ushna	Katu	Kapha Vatahara	Jwara, Pandu, Chardi
Amrta ^[7]	Tikta, Kashaya	Guru, Snigdha	Ushna	Madhura	Tridosahara, Medhya, Rasayana, Kandughna, Deepana Jwarahara, Medhya	Jwara, Pandu, Chardi, Kamala, Bhrama, Anti cancerous activity
Nata ^[8]	Tiktha, Katu, Kashaya	Laghu, Snigdha	Ushna	Katu	Kapha Vatahara, Vishaghna	Antineoplastic property for valtrate
Kana ^[9]	Katu	Laghu, Snidha, Tikshna	Ushna	Madhura	Kapha Vatahara, Dipana, Vrishya, Rasayana, Soolahara	Pliha, Chardi
Patola ^[10]	Tikta	Laghu, Ruksha	Ushna	Katu	Kapha pittahara, Vrishya, Deepana	
Chavya ^[11]	Katu	Laghu, Rooksha	Ushna	Katu	Kapha Vatahara, Deepana, Pachana, Soolaprasaman	Agni mandhya, Athisara
Chitraka ^[14]	Katu	Laghu, Ruksha, Tikshna	Ushna	Katu	Vata Kaphahara, Deepana, Pachana, Grahi, Rasayana	Grahani, Soola, Pandu; Plumbagin- Anti cancerous effect
Vacha ^[13]	Katu, Tikta	Laghu, Tikshna	Ushna	Katu	Kapha Vatahara, Medhya	Suppress inflammation potent analgesic
Mustha ^[14]	Tiktha, Katu, Kashaya	Laghu, Ruksha	Sita	Katu	Kapha Vatahara, Deepana, Pachana	Athisara, Grahani, Raktavikara, Anti- emetic, Anti inflammatory, diuretic
Vidanga ^[15]	Katu, Kashaya	Laghu, Rooksha Tikshna	Ushna	Katu	Vishaghna, Deepana Soolahara, Rasayana, Krimighna	

Role of Anupana

Anupana which is called as adjuvant or vehicle is a substance used as medium of administration of medicine or food. *Anupana* helps to fasten the action of therapeutic combinations. *Acharya* says that *Anupana* should possess the properties opposite to that of food, but does not become incompatible, when taken along with it^[16]. In "*Moorvadi choornam*" four *Anupanas* are mentioned and they are *Takram*, *Koshnambu*, *Masthu* and *Amla rasa*. In commentary *Acharya Indu*^[17] explains *Rasa* as *Mamsarasa*.

DISCUSSION

Cancer, the life threatening condition is increasing day by day due to sedentary lifestyle, intake of untimely and incompatible food, climatic

changes, exposure to environmental pollution etc. All these expose human body to a wide variety of cancers. The enthusiastic researchers had never given up before this villain and thus, many methods have been developed to tackle the fast growing malignant cells. In 1960's surgery and radiation therapy dominated the field of cancer therapy, and later the usage of chemicals /cytotoxic drugs were developed along with this to kill the malignant cells. These cytotoxic drugs which kill the rapidly growing cancer cells all over the body, will also kill the rapidly growing normal healthy cells. This leads to the development of many clinical manifestations in patients. More over many studies have been conducted to prove the geno protective and anti

cancerous activity of phyto chemicals and plant extracts^[18].

Ayurveda has explained a unique concept in *Agadatantra* called as *Garavisha/Kritrimavisha*, which is the combination of poisonous and non poisonous substances, and act as less potent toxin. The chemotherapeutic drugs otherwise called as cytotoxic drugs are nothing other than *Garavisha*. This causes derangement of *Agni* at different level (i.e., *Jadaragni* and *Dhatuagni*). This disturbs proper *Dhatu parinama* and *Dhatudhushti* occurs, leading to certain clinical manifestations such as fatigue, weight loss, skin rashes, abdominal distress, joint pain etc.

In the context of *Garavisha*, *Acharya* mentioned a special *Yoga* called *Moorvadi choornam* which is specifically indicated for *Agnimandhya* caused due to *Garavisha*. It consists of ten drugs and while assessing the individual drugs, it can be seen that most of the drugs possess *Katu tikta rasa*. Even though *Tikta rasa*^[19] is *Swayamarochishnu* (by itself is not tasty), it cures *Aruchi* (Anorexia), which is a common manifestation after chemotherapy. It is *laghu* and has *Upashoshana* property which dries up *Dhatugata ama*. Moreover it is *Jwarahara* which directly implies that it is *Amahara*. *Katu rasa*^[20] is carminative in nature, i.e., it has *Deepana pachana* and *Soshana* property which is necessary to correct *Agnimandhya* caused due to exposure to chemo drugs. Besides it is *Ruchya* (increases appetite) and clears body channels.

Majority of drugs possess *Ushna virya* and *Katu vipaka*, which enhances *Agni*. *Moorvadi choorna* is *Kaphavatahara* and have *Deepana pachana* property. *Vrishya* nature of *Kana* and *patola*, *Rasayana swabhava* of *Kana*, *Amrita* and *Chitraka*, *Soolaprasamana swabhava* of *Kana*, *Chavya* and *Vidangam*, *Vishaghna* property of *Vidangam* and *Nata*, all are favourable to nullify the clinical manifestations after chemotherapy. Anti neoplastic property of valtrate in *Nata* and anti cancerous property of *Amrita* and *plumbagin* in *chitraka* are also beneficial.

In this particular *Yoga*, *Acharya* mentioned 4 *Anupanas*, i.e., *Takram*, *Koshnambu*, *Masthu* and *Amla rasa* (*Bheejapoorarasadi/ Kanjikadiamla dravya*). *Acharya Indu* explains *Rasa* as *Mamsa rasa*.

Among this *Takra*^[21] is *Laghuguna*, *Kashayaamla rasa*, *Deepana* (carminative) and it pacifies *Kaphavata*. *Takra* is indicated for anaemia, oedema, bleeding, anorexia etc, which constitute important chemotherapy complications. Moreover it is directly indicated for *Garavisha*. *Masthu* (whey) is having same properties of *Takram*. Since it is having *Saraguna*, *Laghuguna*, *Srothosodhana* and *Vatanulomana* properties, it can be given as *Anupana*

in the conditions like constipation developed after chemotherapy. More over *Masthu* creates desire for food (*Bhaktha Chatha*)^[22] which directly means that it helps to improve appetite. *Koshnambu*^[23] is *Deepana pachana*, *Laghu*, *Kantyam*, *Vasthisodhanam*, it can be taken as *anupana* in gastro intestinal distress and other symptoms. *Amla cha rasena* has two opinions. *Vagbhata* says it as *Amla rasa*, which is most suitable adjuvant in the case of anaemia like complications. *Mamsarasa*^[24] is the other opinion by *Indu*, the commentator of *Sasilekha vyaghyanam*. It is *Ruchikara*, *Hridya*, provides *Smriti* and *Ojas*, and useful for *Swaraheenan*, *Swasa*, *Kasa*, *Ksaya*, *Jwara*, *Krisa*, *Alparethas*, *Dhatukshaya* and *Sukrakshaya*. It is a suitable *Anupana* in fatigue, weight loss, for those with fertility problems and Chemo brain, which can effect concentration and focus. The highlight of this yoga is the 4 *Anupanas* which we can give depending up on specific symptoms.

Chemo Complications	Anupanam
<i>Pandu/Aruchi</i>	<i>Moorvadi choornam+ Takram/ Amlarasa</i>
Constipation	<i>Masthu</i>
Fatigue, Weight loss, Fertility problems	<i>Mamsa rasa</i>
Gastro intestinal distress & other symptoms	<i>Koshnambu/Takram</i>
Chemo brain	<i>Mamsa rasa</i>

CONCLUSION

Chemo complications occur due to *Agnimandhya* occurring at *Dhatu agni* and *Jadaragni* level, due to the action of *Garavisha*. The *yoga Moorvadi choornam* with proper *Anupana*, consisting of many ingredients to compensate the chemo side effects can surely cure the *Garopahatha agni* at different levels.

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***Address for correspondence**

Dr. Aswathi G

Assistant Professor,
Department of Agadatantra,
Government Ayurveda College,
Tripunithura.

Ph: 9496728059

Email:

aswatigangadharan@gmail.com

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