

EFFECT OF VACHADI GANA IN STHAULYA (OBESITY): A REVIEW

Akansha Verma 1*, Usha Sharma 2, Shuchi Mitra 3, Khemchand Sharma 4

1. Professor, P.G Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurved University, Rishikul Campus, Haridwar
2. P.G Scholar, P.G Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurved University, Rishikul Campus, Haridwar
3. Associate Professor, P.G Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurved University, Rishikul Campus, Haridwar
4. Professor, H.O.D, P.G Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurved University, Rishikul Campus, Haridwar

*Corresponding author: Dr. Akansha Verma P.G Scholar

P.G Department of Rasa Shastra evum Bhaishajya Kalpana, Uttarakhand Ayurved University, Rishikul Campus
Haridwar Pin Code: 249401

ABSTRACT

In today's era Obesity is one among the major diseases. It is a predisposing factor for so many diseases like cardiovascular diseases, diabetes mellitus etc. Obesity is a major problem both in developed and developing countries affecting both children as well as adults. In Ayurveda, so many drugs are advocated for the management of Sthaulya. One of them is Vachadi Gana that is mentioned in different texts of Ayurveda for the management of Sthaulya. Here Vachadi Gana from Ashtang Hirdiya is taken to study its effect on Sthaulya. It consists of six drugs – Vacha (*Acorus calamus*), Nagarmotha (*Cyperus scariosus*), Devdaru (*Cedrus deodara*), Shunthi (*Zingiber officinale*), Atish (*Aconitum heterophyllum*) and Haritaki (*Terminalia chebula*). The purpose of this paper is to provide a comprehensive review on the actions of all ingredients of Vachadi Gana separately on Sthaulya. Compelling evidences by present extensive literature survey are suggestive of potential of all these drugs of Vachadi Gana in the management of Sthaulya.

Keywords – Sthaulya, Obesity, Vachadi Gana, Vacha, Nagarmotha, Devdaru, Shunthi, Atish, Haritaki.

INTRODUCTION

Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 is considered overweight, and over 30 is obese. Obesity is one side of the double burden of malnutrition and today more people are obese than underweight.^[1] In 2016, 650 million adults were obese and about 23.6 million people were estimated to die of cardiovascular diseases (CVDs) by the year 2030^[2]. Sthaulya (Obesity) is a chronic disease that highly acts as predisposing factor for the development of other serious diseases like diabetes mellitus, hypertension, heart disease and certain forms of cancer.^[3] Improper diet (high calorie intake), lifestyle (e.g., smoking, chronic alcohol consumption, sedentary habits), and/or low level of nitrosamines (through processed food, tobacco smoke, and nitrate-containing fertilizers) affect the liver and can further lead to fatty liver disease.^{[4][5]} In conventional system of medicine there are drugs which act indirectly on obesity, they reduce the appetite and have adverse effects.^[6] Hence, it is need of an hour to find out the suitable remedy to deal this problem. This can be very much co-related to the concept of Sthaulya explained in Ayu According to W.H.O currently 1.9 billion adults worldwide were overweight of these over 600 million were obese in 2014.^[7] Vachadi Gana is mentioned in the different Ayurvedic Texts – In Nighantu Adarsh,^[8] Sushrut Samhita^[9], Ashtang Hirdiya^[10] and Brihatnighantu ratnakar^[11]. The present review is about the effects of Vachadi Gana on

Sthaulya, which is chosen from Ashtang Hirdiya. Vachadi Gana is consists of six ingredients namely – **Vacha**, Nagarmotha, Devdaru, Shunthi, Atish and Haritaki. All these ingredients are having Kaphaghna, Vataghna, deepan Pachan properties. Vacha is a traditional herb used in Indian system of medicine, to treat various health ailments like gastrointestinal, metabolic, respiratory, neurological, kidney, and liver disorders etc.^[12] **Devadaru** is an important herb from Pinaceae family found in the north-western Himalayas it is mentioned by different groups in Bruhatryis, Anuvasanopaga dashaimani^[13], Stanya shodhana dashaimani^[14], Katuskanda^[15], Kashay skanda^[16], Katuvarga^[17] Eladi group^[18], Vachadi group^[19], Vatasamshamana varga^[20], Eladi gana^[21], Rodhradi gana^[22], Vatagna gana^[23] **Ativisha** (*Aconitum heterophyllum*) belongs to family Ranunculaceae. It is an Ayurvedic herb which is known for its important medical properties like Deepana, pachana, kaphapittahara etc. The root of the plant is used in various forms to prepare various Ayurvedic formulations. **Nagarmotha** (*Cyperus rotundus*), a cosmopolitan weed, is found in all tropical, subtropical and temperate regions of the world. In India, it is commonly known as Nagarmotha and it belongs to the family Cyperaceae. Shunthi For centuries, Shunthi is consumed worldwide as a spice and flavoring agent and is attributed to have many medicinal properties. It has been an important ingredient in Ayurvedic, Chinese, and Tibb-Unani herbal medicines.^[24] In Ayurveda, it has been referred as Mahaushadha meaning a great medicine and also Vishvabhesaja i.e. the universal medicine.^[25] Haritaki (*Terminalia chebula*) belongs to family Combretaceae. It is used for various therapeutic purposes since ancient time. It has been widely used in the traditional Indian medical system of 'Ayurveda' for the treatment of a variety of ailments. It is called the "King of Medicines" in the Tibet and is always listed first in the Ayurvedic materia medica because of its extraordinary powers of healing with a wide spectrum of biological activity.^[26]

THE RASA- PANCHAKA OF CONTENTS OF VACHADI GANA

| S.No | Drug Name | Rasa | Guna | Virya | Vipaak |
|------|-----------------------------------|--------------------------------|------------------|--------|--------|
| 1. | Vacha ^[27] | Tikta, Katu | Tikshna, Laghu | Ushna | Katu |
| 2. | Nagarmotha ^[28] | Tikta, Katu, Kashaya | Laghu, Ruksha | Sheeta | Katu |
| 3. | Devdaru ^[29] | Tikta | Laghu, Snigdha | Ushna | Katu |
| 4. | Shunthi ^[30] | Katu | - Laghu, Snigdha | Ushna | Madhur |
| 5. | Atish ^[31] | Tikta, Katu | Laghu, Ruksha | Ushna | Katu |
| 6. | Haritaki ^[32] | Kashay Ras pradhan pancha rasa | Laghu, Ruksha | Ushna | Madhur |

DIFFERENT KARMA OF ALL INGREDIENTS OF VACHADI GANA –

| Drug | Karma of Drug |
|-------------------|--|
| Vacha | <i>Krimighna, Deepan, Kanthya Mala mutavishodhani</i> ^[33] <i>Kaphaghna, Vataghna</i> ^[34] |
| Nagarmotha | <i>Shothahara, Lekhana, Deepana, Pachana, Kaphaghna, Balya, Mootrala, Grahi</i> ^[35] |
| Devdaru | <i>Shothahara, Vednasthapana, Kushthagha, Krimighna, Vranashodhana, Vranaropana, Deepana, Pachana, Anulomana, Hridyottejaka, Raktprasadana, Kaphanissaraka, Shleshmaputihara, Mootrajanan, Pramehaghna, Garbhashyashodhana, Stanyashodhana, Lekhana, Jwarghna.</i> ^[36] <i>Vatahara, Kaphahara, Dushtavrana Shodhaka</i> ^[37] |
| Shunthi | <i>Vatashamaka, Shleshmahara, Shwashara, Vrishya, Jwarhara, Uttejaka, Sheetaprashamana, Vedanasthapana, Nadiuttejaka, Shothhara, Rochana, Deepana, Pachana, Vatanulomana, Triptighna, Shool prashmana, Arshoghna, Bhedana, Grahi, Hridya, Svarya.</i> ^[38] |
| Atish | <i>Dipana, Pachana, Samgrahika, Kaphapittahara</i> ^[39] |
| Haritaki | <i>Deepan, Rasayana, Chakshushya, Anulomana, Sarvadoshaprashmana, Hradya, Medhya</i> ^[40] |

CHEMICAL CONSTITUENTS FOUND IN THE INGREDIENTS OF VACHADI GANA

| Drug | Chemical Constituents |
|-------------------|---|
| Vacha | Volatile oil (principal constituent of volatile oil are Asamyl alcohol, eugenol, asarone), Acorin (Glucoside), starch and tannin, acolamone, acoramone, acronone. ^[41] |
| Nagarmotha | Pinene, cineol, alcohol – isocyperol, linolenic, linoleic, oleic, myristic and stearic acids and glycerol, oleanolic acid and its glycoside, oleanolic acid- 3-0- neohesperidoside along with sitosterol. ^[42] |
| Devdaru | <i>Dihydromyricetin, cedrine, deodorin and cedrin oxide, kaempferol glucoside, polyphenolic lignoids, deodaridone, limonenecarboxylic acid, cedeodarin, dihydromyricetin, cedrin side, taxifolin, meso-secoisolaricciresinol, cedrusinin, himacholol, isocentadrol, centadrol, cedrusin, lariciresinol.</i> ^[43] |
| Shunthi | Heptane, isovaloraldehyde, camphene, Casinine, myrecene, limonene, phellandrene, curcumene, gingerol, zingerone, shogoal, ginger glycolipids A,B,C gingersols, cineol, gzingeral, gingeodiol, sesquitanjene, zingiberenol, threonine, glycine, isoleucine, leucine and arginine 47 ^[44] |
| Atish | Atisine, aconitinic acid, tannic acid, oleic, palmitic, stearic glycerides. ^[45] |
| Haritaki | Anthraquinone glycoside, Chebulinic acid, chebulin, chebulagic acid, tannic acid, terchebulin, tetrachebulin, vit C, arachidic, behenic, linoleic, oleic, palmitic, stearic acid, maslinic acid. ^[46] |

MATERIAL AND METHOD

Data and evidences were collected from secondary sources that includes articles, books, Wikipedia, reference materials etc.

Vacha (*Acorus calamus*)

The β -asarone compound isolated from the rhizome was investigated against high-fat diet (HFD)-induced obesity in animals. β -Asarone - treated adipose rats showed weight loss, but also inhibited metabolic transformations, as well as glucose intolerance, elevated cholesterol, and adipokine variance.^[47] The in vitro investigation on the *A. calamus* aqueous extract showed lipid-lowering activity through inhibition of the pancreatic lipase percentage (28.73%).^[48]

Nagarmotha (*Cyperus scariosus*)

1. Due to Lekhana, Medoghna, Kapha-Vatahara, Laghu, Ushna and Ruksha Guna, Katu, Tikta, Kashaya Rasa and Katu Vipaka properties of the drug Motha and Nagarmotha Choorna. By its use with PathyaApathya, accumulated Apachita Meda Dhatu was decreased and thus Motha and Nagarmotha was found beneficial in the study^[49].

2. Lipid lowering activity - In the present study, hyperlipidaemia was induced by high fat diet as it is always useful for the assessment of agents that interfere with the absorption, degradation and excretion of cholesterol. Feeding with high fat diet caused significant ($P < 0.05$) increase in serum total cholesterol (TC), triglyceride (TG) and low density lipoprotein (LDL) levels with respect to the baseline value. Though on high fat diet feeding an increase in high density lipoprotein (HDL) levels were seen but they were not found to be statistically significant. In present study, treatment with the standards and different doses of extract exerted statistically significant ($P < 0.05$) reduction in serum TC, LDL, TG, HDL levels at the end of 15 days of intervention.^[50]

Devdaru (*Cedrus deodara*)

1. The extracts of *Cedrus deodara* decreased serum glucose, total cholesterol and triglyceride, low density lipoprotein (LDL) and very low density lipoprotein (VLDL) levels and increased high density lipoprotein (HDL) significantly has compared to MSG-control rats.^[51]

2. The Ghruta prepared with Devadaru, Sauvarcala, Sarjika etc., herbs cure Vataja Gulma and also act as appetizer.^[52]

Shunthi (*Zingiber officinale*)

Obesity, diabetes, and heart disease are the most common cause of death. Many studies have suggested that increasing consumption of plant foods like ginger decreases the risk of obesity, diabetes and heart disease. Ginger is having stimulatory action on heart muscle, and stimulated blood circulation throughout the body. Cardio-tonic effect of gingerol has been observed in guinea pig atrial muscle.^[53] A number of pieces of evidence, mainly from rat studies, have suggested that ginger exerts many direct and indirect effects on blood pressure.^[54] It also has been found that ginger possesses hypoglycaemic, hypocholesterolaemic and hypolipidaemic potential and as well as it is effective in reversing the diabetic proteinuria in the diabetic rats (Al-Amin et al., 2006).^[55]

Atish (*Aconitum heteropyllum*)

It was observed that vishoshi kashaya yielded better results than choorna. The tikta, katu rasa of ativisha acts as Lekhana & Rukshana respectively.^[56] The laghu, ruksha gunas counteract the guru, snigdha, picchila guna of Kapha & meda. Ushna veerya also pacifies kapha. In Sthoulya there will be dhatu vruddhi (medodhatu) due to dhatvagni mandya; this can be tackled upon by deepana, pachana, medohara karma of Ativisha. This can be substantiated by the presence of Triterpenoids, saponins, proteins which have stimulatory effect on the digestion.^[57]

Haritaki (*Terminalia chebula*)

A study of Clinical evaluation of the Sthaulyahara effect of Haritaki and Amalaki based on the principle of Hrasa Hetu Visheshascha, has shown that haritaki having Kaphagna and Medoghna properties due to Agni and Vayu Mahabhuta dominance and due to this. The drug Haritaki shows better results on the various taken parameters related to obesity (i.e. body weight, BMI, body circumference) which shows depletory action.^[58]

DISCUSSION

In today's modern era the lifestyle has been changed so much. Due to lack of time and healthy resources people doesn't have time to take care of themselves. As a result of sedentary lifestyle people are suffering from lots of disease and obesity is one of them. Obesity is a major problem because it's not only a disease but it acts as a predisposing factor for many other diseases like diabetes, hypothyroidism, hypertension, cardiovascular diseases etc. So it is need of an hour to find proper management for Sthaulya with minimum side effects. In this article Vachadi Gana has been reviewed for Sthaulya. Vachadi gana consists of six drugs namely – Vacha, Nagarmotha, Devdaru, Shunthi, Atish and Haritaki. Vachadi gana is mentioned in various Ayurvedic texts. All ingredients of Vachadi Gana have properties of mainly Kaphaghna, Vataghna, *Lekhana*, *Deepana*, *Pachana*, Kaphanissaraka. Utility in the treatment of Santarpanotha Vyadhis is supported by Tikta, Kashaya, Katu Rasa, Laghu - Ruksha Guna, Lekhan Karma and Katu Vipaka of drugs and all these properties are present in drugs of Vachadi Gana. By having Lekhana property these dravyas reduces or scrapes away the unwanted tissues & metabolic wastes. Due to their deepan and Pachan property they help in proper digestion of food by aggravating Agni. Hence by proper digestion of food all dhatus will get properly nourished because in Sthaulya only dhatu vrudhhi of medodhatu takes place due to dhatvagni mandya. The laghu, ruksha gunas counteract the guru, snigdha, picchila guna of Kapha & meda. Ushna veerya also pacifies kapha. As per study of these six drugs there are various researches have been conducted on t anti-obesity effect of these six drugs. Due to their properties and chemical compositions they are found effective in the management of Sthaulya as concluded in this article.

CONCLUSION

On the basis of various studies conducted as quoted in this article research, it is found that Vachadi Gana (Vacha, Nagarmotha, Devdaru, Shunthi, Atish and Haritaki) found effective in reducing the classical Sign and symptoms of Sthaulya.

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