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A STUDY OF ROLE OF AAHARIYA DRAVYA ATASI (LINUM USITATISSIMUM LINN.) ON HYPERCHOLESTEROLEMIA

C. Shrilaxmi R. Chintaliah[1], **Rajkumar Bobade**[2]

[1]Assistant Professor, Swasthavritta and Yoga department, BAMC, Amroha, Uttar Pradesh, India
[2]Vice Principal & HOD Swasthavritta and Yoga Department College of Ayurved and Reasearch Centre, Akurdi, Maharashtra, India

Corresponding Author: c.shrilaxmi@gmail.com

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ABSTRACT

The presence of an abnormally large amount of cholesterol in the blood is called Hypercholesterolemia which has been developed due to a sedentary lifestyle. The liver is the main organ for producing cholesterol in the body. *Staulya* (Obesity) which is included in *Ashtau-Nindhita-Purusha* (8 physical deformities) by *Acharya Charaka* (*Ch. Su*.21) is the disease caused due to vitiated *Meda*. As cholesterol is formed by fatty tissue i.e. *Meda* explained in Ayurvedic literature. So, both the entities can be correlated as they both have the same composition i.e. fatty tissue. The present study aimed to find out the role of *Ahariya Dravya* (dietary substance) *Atasi* (flax seeds) administered twice a day for 3 months duration on patients of Hypercholesterolemia and some factors of *Staulya*. After conducting the study, the observations and results were obtained.

Keywords: Hypercholesterolemia, *Staulya*, obesity, *Atasi*, flax seeds

INTRODUCTION

Health is the primary imperative feature, deprived of which an individual cannot live life opportunely and serenely. Owing to which disease like *Staulya* (Obesity) and Hypercholesterolemia has developed. Hypercholesterolemia has been unveiled to have a prevalence of 10% in Maharashtra. The liver is the fore-

most organ for producing cholesterol in the body. There is a modification in liver function which affects the production of cholesterol which leads to the deposition of saturated fats in the body. In arrears to this, obesity surges and leads to a surge in total serum cholesterol. By evaluation of *Samhitas* (classical literature) about *Aahar* (Diet), it is perceived that *Atasi* has *Kaphaghna* (vitiate *Kapha Dosha)* properties. *Kapha* and *Meda* are in *Aashrya-Aashrayi-Sambandh (*inseparable relation like of abode and resident*)* with each other, and they mutually have equivalent *Panchabhauthic (Panch* = five *and Bhuta* = entity*) Sangathan* (combination*)*. *Atasi* can be used in *Staulya* as it is *Katu* (pungent) *Vipaki* (taste at the end of digestion), *Ushna* (hot) *Virya* (potency) and *Ruksha* (dryness) *Guna*(quality) which acts as *Kaphaghna* and may similarly act on *Medodhatu* (fatty tissue) as *Medohar* (vitiates fat). *Staulya* has been explained *Charak Samhita*. Some of the *Hetus*(causative factors) of *Staulya* are *Vyayam Abhav* (Lack of exercise), *Divaswapa* (sleep during day time), *Shleshma Aahara Sevan* (fatty diet intake) which contains *Madhur Ras* (sweet taste) and *Snigdha Guna Aahar* (Oily diet) etc. In the *Samprapti* (etiogenesis) of *Staulya, Kapha* is main *Dosha* (humour) and *Meda* (fat) is the main *Dushya* in which *Agnimandya* (dyspepsia) leads to specific *Dhatu* (tissue)- *Agnimandya* which disturbs the proper development of *Medadhatu*, so the quantity of *Apachitmeda* (undigested fat) *i.e. Kleda* (waste) increases. Conferring to modern science, *Atasi* (*Linum usitatissimum* Linn.) comprehends omega 3 fatty acids. Omega 3 fatty acids are effective to diminish cholesterol predominantly to the diminution of low-density lipoproteins (LDL) and total cholesterol which are deliberated to be not virtuous for health. Conferring to Ayurveda, *Meda* obligates *Snigdha* and *Ghana* (solid) properties analogous to lipids which are oily and heavy. Hence *Meda* and lipids can be associated. So, conferring to Ayurveda there is *Medo Dushti* (vitiation) in *Staulya* and according to modern science, there is amplified levels of lipids leading to Hypercholestrolemia.

Aim and Objectives: To study the role of *Atasi (Linum usitatissimum Linn.)* on Hypercholesterolemia and symptoms of *Staulya*

Materials and Methods: An open, randomized clinical study was accomplished

Selection of Patients: Patients are observed in *Swasthavrita* department OPD of College of Ayurveda and Research Centre, Akurdi. A pre-diagnosed patient with Serum cholesterol levels of more than 200mg/dl and less than 300mg/dl was reserved.

Drug Description: *Atasi* is *Madhura* (sweet), *Tikta* (bitter), *Snigdha Gunatmka* (having properties) and *Katu Vipaki*. *Guru* (heavy), *Ushna* in nature. It is *Druk* (Skin), *Shukra* (sperm) *Vatgni* (vitiates *Vata Dosha*) and *Kapha Pitta Vinashini (*decreases *Kapha* and *Pitta Dosha)*. *Atasi* is *Kaphgna, Vatghna* as it has *Snigdha, Ushna Gunas* and *Tikta* and *Madhur Ras*. *Kapha* and *Meda* are in *Aashrya Aashrayi Sambandh* with each other and they both have the same *Pancha Bhauthic Sangathan*. *Atasi* can be used in *Staulya* as it is *Katu Vipaki, Ushna Virya* and *Ruksha Guna* which acts as *Kaphaghna*.

Dose and Duration of Drugs: The dose was 10 gm/day (5gm in morning and evening correspondingly). *Anupam* (adjuvants) was *Koshna Jal (*lukewarm water). *Bhaishajyakaal* (time of drug administration) was *Pragbhakt* (before breakfast and dinner). The period of the clinical study was 3 Months. Follow up was after every 1 month

Withdrawal Criteria: The investigator textures that the etiquette has been desecrated or the patient has become incorporative. Patients inattentive for continuous 2 follow-ups were reflected as plummeted out from this trial. *Pitta pradhan Prakriti* (*Pita* constitution) persons and with any foremost illness were omitted. So, 47 patients are enrolled but 7 were dropped.

Results

Levels of cholesterol and assessment of symptoms of *Staulya* are obtained after the completion of the clinical trial. The outcome after the clinical trial showed significant changes in levels of cholesterol and symptoms of *Staulya*.

Serum cholesterol levels were checked before and after the treatment that is on the 0th day and the 90th day.

The decrease in levels of cholesterol in males is 0.31% and in females is 1.50%. So, there is a significant change in cholesterol in females than in males. The obtained value of p is 0.007 which suggests that there is a significant reduction in levels of cholesterol after 90 days. Out of 40 patients, 13 shows negative rankings. 32.5% of patients show a reduction in the level of *Gatradaurgandhya*. The value of p is 0.00 which is less than 0.05. So, treatment is effective on *Gatradaurgandhya* because *Sweda* is *Mala* of *Meda*. So due to *Kaphaghna* property of *Atasi Churna* the *Gatradaurgandhya* is reduced. *Swedadhikya* Out of 40 patients 17 shows negative rankings. 42.5% of patients show a reduction in level of *Swedadhikya*. The value of p is 0.00 which is less than 0.05. So, treatment is effective on *Swedadhikya* because *Sweda* is *Mala* of *Meda*. So, due to *Kaphaghna* property of *Atasi Churna*, the *Swedadhikya* is reduced. The value of p is less than 0.05. Out of 40 patients, 25 shows negative rankings. 62.5% of patients show a reduction in the level of *Atikshuda* based on the amount of food. The value of p is less than 0.05. So, treatment is effective on *Atikshuda* on basis of the amount of food. Based on *Aharkal*. Out of 40 patients, 23 shows negative rankings. 57.5% of patients show a reduction in the level of *Atikshuda* based on *Aharkal*. The value of p is 0.00 which is less than 0.05. So, treatment is effective on *Atikshud*a based on *Aharkal*. It is because may be due to the delay *Paripaka* (end product) of *Aahar* by removing *Aavaran (coating)* of *vata* on *Meda*. *Atipipasa.* Out of 40 patients, 20 shows negative rankings. 50% of patients show a reduction in the level of *Atipipasa*. The value of p is 0.00 which is less than 0.05. So, treatment is effective on *Atipipasa* because may be due to the delay *Paripaka* of *Aahar* by removing *Aavaran* of *vata* on *Meda.*

DISCUSSION

25% of patients were found in the 20-40 years age group while 75% patients were found in the 40-60 years age group in which 60-year patients are also included. Maximum patients belong to the 40-60 age group. It may be because of unhealthy dietary regimens and more energy consumption and less energy expenditure. Lack of exercise leads to less energy expenditure. Maximum patients were female i.e. 60%. Fat stores may be below 30 per cent and increase gradually to more than 35 per cent in older women whereas in men it increases up to 25 per cent only (Harrison's Principle of Modern Medicine). The prevalence of obesity is higher among women than among men. (Oxford's textbook of Medicine). It may be because of menopause, postoperative condition, predominant feminine factors, which makes females obese. Maximum patients are housewives followed by servicemen. The percentage of housewives was 37.5 and servicemen was 35. It may be because of lack of exercise, unhealthy dietary habits etc. There is more accumulation of fats in women than men and as age increases this accumulation increases. So, there is more energy consumption and more energy expenditure which leads to *Staulya* and hypercholesterolemia. Diet pattern is divided into two i.e. vegetarian and mixed diet i.e. veg as well as non-veg. The patients consuming only vegetarian food are 57.5% and mixed diet is 42.5%. Among which decrease in cholesterol in mixed diet patients are 0.75% and in vegetarian are 0.67 %. So, there is more decrease in levels of cholesterol is seen in the patients of a mixed diet. It may be because in a mixed diet there is a decrease in the frequency of non-veg consumption than before e.g. eating twice a week is decreased to once a week. So, there is more decrease in a mixed diet consuming patient.

Table 1:

Sr.No.	Parameter	Mean score before treatment	Mean score after treatment	Reduction in parameter
1.	Total Cholesterol Male Female	229.46 218.75 229.46	226 218.06 226.00	3.46 0.69 3.46
2.	*Gatradaurgandya* (foul smell)	1.05	0.75	0.3
3.	*Swedadikya* (excessive sweating)	1.37	0.95	0.42
4.	*Atikshudha* (Increase in appetite) *On the basis of the amount of food *On the basis of *Aharkal* (frequency of intake)	1.7 2.82 1.752	1.125 1.62 1.175	0.575 1.2 0.577
5.	*Atipipasa* (increased thrust)	1.675	1.2	0.475

Sr.no.	Parameter	Percentage	Value of p
1.	Total Cholesterol • Male • female	 0.31 1.5	 0.007
2.	*Gatradaurgandya*	32.5%	0.00
3.	*Swedadikya*	42.5%	0.00
4.	*Atikshudha* * Based on the amount of food *On the basis of *Aharkal*	 62.5% 57.5%	 0.00 0.00
5.	*Atipipasa*	50%	0.00

CONCLUSION

Atasi possesses the *Kaphagna* properties which help to reduce cholesterol and factors like *Gatradaurgandya*, *Swedadhikya*, *Atikshudha*, *Atipipasa*. So *Atasi* 10 gm/day BD is effective in reduction of serum cholesterol and *Gatradaurgandya*, *Swedadhikya*, *Atikshudha*, *Atipipasa* after treatment.

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