



Case Study

EFFICACY OF AYURVEDIC FORMULATIONS IN DYSLIPIDEMIA (*MEDO DUSTI*)

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ABSTRACT

Obesity (Overweight) is the condition arises as consequence of various metabolic disorder in which dyslipidemia is one of them. Dyslipidemia is described by an increase in Total Cholesterol, low density lipoprotein (LDL), triglycerides (TGA's) concentration in the blood. In Ayurvedic classics it had been described as *Medoroga* in which excessive deposition of *Meda Dhatu* in body produces various symptoms. In the above case report patient comes with symptoms of *Meda dusti* and diagnosed on the basis of deranged lipid profile. The combination of *Arogyavardhini vati*, *Navak guggul* with *Anupaan* of *Darvyadi Kwath* was prescribed. After 34 days of drug intervention with scheduled diet plan there is a significant reduction in Triglycerides, Cholesterol and other parameters lies in the normal range, weight reduces (from 71kg to 68kg) within 30 days with BMI. The management of the disease results in formation of vitiated *Kapha* and *meda dhatu* through *Dravya's* of *Lekhaniya Gana* with *Pathya sevan*.

INTRODUCTION

Obesity has become a major worldwide health problem. Overweight and obesity are responsible for 44% of diabetes burden, 23% of ischemic heart disease burden, and 7-41% of various cancer^[1]. Around 1.9 billion persons worldwide in 2016 were overweight, with Almost 650 million people worldwide were obese. In every single country in the world, the incidence of obesity is rising continuously and therefore, the associated morbidity, mortality and both medical and economical costs are expected to increase as well. Many of these complications are related to co-morbid conditions that include coronary artery disease, hypertension, type 2 diabetes mellitus, respiratory disorders, and dyslipidemia. Obesity increases cardiovascular risk through risk factors such as increased fasting plasma triglycerides, high LDL cholesterol, low HDL cholesterol, elevated blood glucose and insulin levels and high blood pressure.

Novel lipid dependent, metabolic risk factors associated to obesity are the presence of the small dense LDL phenotype, postprandial hyperlipidaemia with accumulation of atherogenic remnants and hepatic overproduction of apo B containing lipoproteins. All these lipid abnormalities are typical features of the metabolic syndrome and may be associated to a pro-inflammatory gradient which in part may originate in the adipose tissue itself and directly affect the endothelium^[2]. In the above article, the patient is coming under the category of obesity called overweight. According to WHO, overweight is a BMI greater than or equal to 25kg/m². The severity of dyslipidaemia increases with increase in the BMI. Around 60-70% of people with obesity have dyslipidaemia while 50-60% overweight people have dyslipidaemia^[3].

In Ayurveda obesity can be correlated with *Sthaulya* which is considered to be a disease of *Medodhatu* meaning a disorder of lipid metabolism. *Sthaulya* is considered as a *Santarpanjanya vikar* and is one of the eight *Nindtiye* diseases mentioned by *acharya charak*^[4]. Consumption of fatty diet, less physical activity and hereditary factors results in derangement of *Medodhatavagni*. *Nidan Parivarjan*, *Pathya aahar vihar* and *Aptarpan* is a line of treatment mentioned in Ayurveda for vitiated *Dosha* and *Agni*. This article highlights the use of Ayurvedic medications such as *Arogyavardhini vati*, *Navak guggulu*, *Daruharidra kwath*,

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and *Sunthi churna* as an adjuvant to treat obesity (overweight).

Case report

A 22 years old male patient visited in OPD of Dept. of Kayachikitsa, Ch. Brahm Prakash Ayurved Charak Sansthan, New Delhi, with complaints of increase in weight in last 3 months from 65kg to 71kg.

Personal history

| | | | |
|-----------------------|-----------------------|-----------------------|-------------------------|
| Addiction | Tea | Pulse | 84 |
| Occupation | Sedentary office work | Blood pressure | 120/mmHg |
| Marital status | Unmarried | Weight | 71kg |
| Diet | Vegetarian | Height | 165cm |
| - | - | BMI | 26.02 kg/m ² |

On physical examination, there is raised appetite, no pallor, no icterus, no edema was detected. The general condition of the patient is good with higher mental function intact, vitals stable (BP 120/80 mmHg, PR 80/min). Systemic examination is unremarkable except abdominal examination. During examination, abdominal girth is 94cm. Abdomen is soft, non-tender, uniform with accumulation of fat around flanks.

He is diagnosed with *Kapha meda dusti* with the involvement of *Meda dhatu* (lipids), *Kapha dosha* with the symptoms of *Kshudra Shwas* (shortness of breathing), *Trishna* (excessive thirst), *Swapna* (excessive sleep), *Kshudha* (fatigue).

Asthavidha pariksha^[5]

| | | | |
|---------------|---------------------|----------------|----------------|
| <i>Nadi</i> | <i>Pittaj vataj</i> | <i>Shabada</i> | <i>Sama</i> |
| <i>Mala</i> | <i>Niraam</i> | <i>Sparsh</i> | <i>Snigdha</i> |
| <i>Mootra</i> | <i>Avikrit</i> | <i>Drik</i> | <i>Avikrit</i> |
| <i>Jihva</i> | <i>Avikrit</i> | <i>Aakruti</i> | <i>Visham</i> |

Before treatment the patient was found to be deranged with total cholesterol 162mg/dl, triglycerides from 217.7 to 90.0mg/dl, HDL 40.6 to 31.33mg/dl and LDL 78mg/dl, weight gain 71kg (4kg within 2months) and BMI is 26.02kg/m². After 34 days of treatment total cholesterol abates 136mg/dl, triglycerides 90.0mg/dl, HDL 31.33mg/dl, LDL 18.03mg/dl and weight reduce from 71 to 68.0kg within 30 days. (Picture 1)

In contemporary medical therapy, it is similar with deranged lipid profile with obesity. It would favour dyslipidaemia because lipid ranges raised above normal but mild increment in abdominal girth.

Treatment Plan

| Medicine | Dosage | Duration |
|----------------------------|----------------------|----------|
| <i>Navak guggul</i> | 1 Tab TDS after meal | 34 days |
| <i>Arogyavardhini vati</i> | 2 Tab BD before meal | 34 days |
| <i>Darvayadi kwath</i> | 40 ml BD | 34 days |

(* 1 TABLET IS EQUAL TO 250 mg)

Diet plan (*pathya apathya*)^[6]

The patient is advised to take warm water only avoiding cold drinks alcohol and cold water. the food advised were barley, *Yava*, whole wheat flour, green vegetables with lessened spices and oil, fruits like orange, apple, pomegranate were advised. Salt restriction use of only minimal salt and, hard to digest food like kidney bean, red meat was also restricted.

OBSERVATION

| Laboratory findings | Before treatment | After treatment |
|---------------------|-------------------------|------------------------|
| Cholesterol | 162 mg/dl | 136.77 |
| Triglycerides | 217.7mg/dl | 90.15 |
| HDL direct | 40.6 mg/dl | 31.33 |
| VLDL | 44% | 87.42 |
| LDL | 78 mg/dl | 18.03 |
| Weight monitoring | 71 kg | 68.0kg |
| BMI | 26.02 kg/m ² | 24.98kg/m ² |

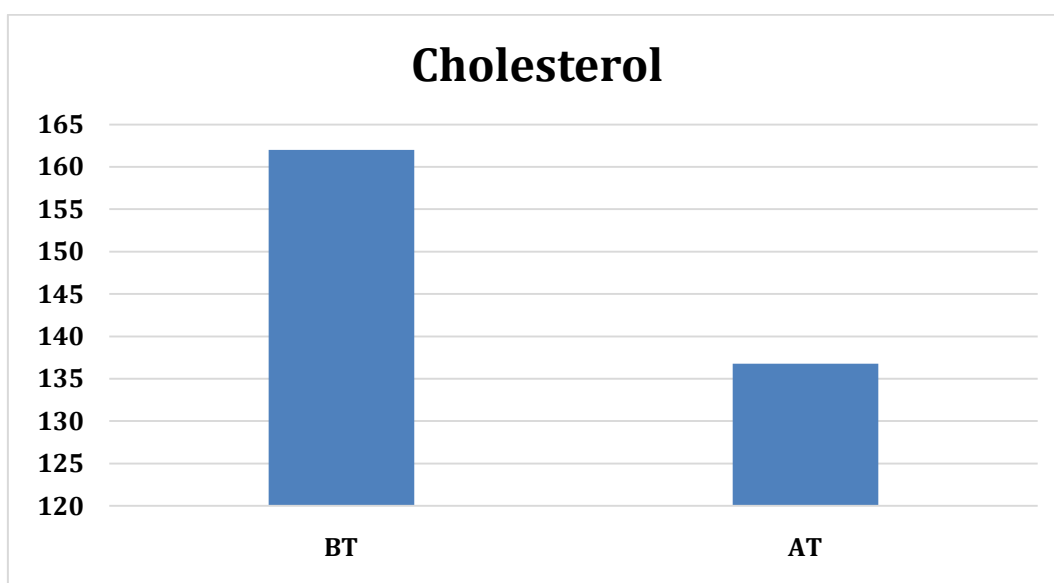


Figure 1: Assessment of Cholesterol level

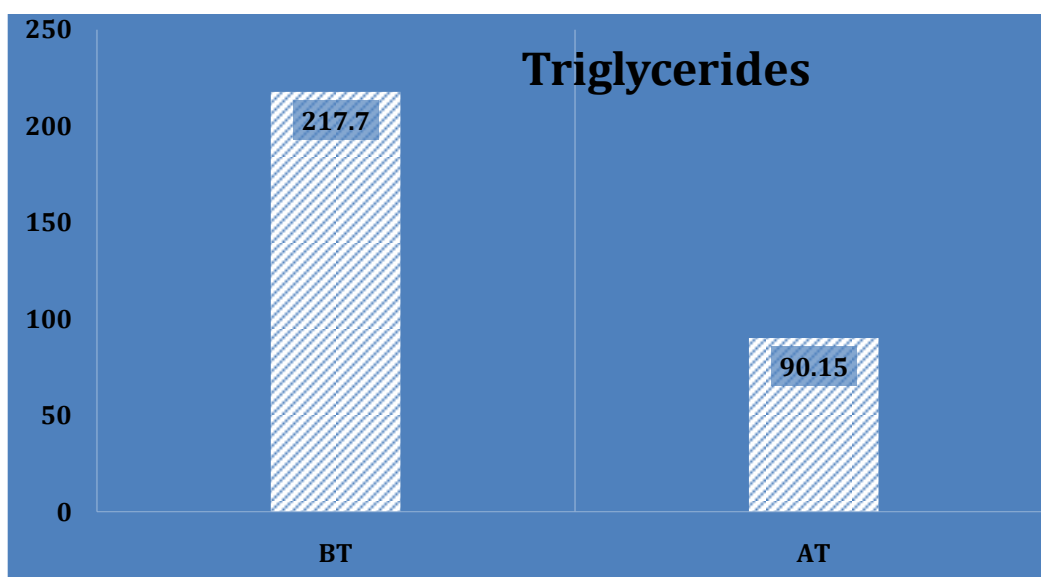


Figure 2: Assessment of Triglycerides

RESULTS

The result was accessed on the basis of laboratory findings of lipid profile and reduction in patient weight. Before treatment the report shows Triglyceride 217.7mg/dl which is higher than the normal value, the cholesterol level was sub clinical that is 162mg/dl rest of the values were under normal range. The test was again performed after 20 days with Triglyceride level 90mg/dl and Cholesterol level 136mg/dl without any significant change in other values. Patient weight also reduced from 71kg to 68.5kg over the span of 34 days. (Picture 2)

DISCUSSION

The following ingredients of *Arogyavardhini Vati*^[7] are known to have hypolipidemic effects: *Picrorrhiza kurroa*, *Terminalia chebula*, *Terminalia bellerica*, *Emblica officinalis*, and *Guggulu (Commiphora mukul)*. *Arogyavardhini Vati*, which contains *Picrorrhiza kurroa*, has choleric effects. *Amla*, another ingredient in Ayurvedic medicine, possesses HMG CoA reductase inhibitory action. Squalene epoxidase, a rate-limiting enzyme in the manufacture of cholesterol, is inhibited by ellagic acid, which is produced when ellagic tannins are hydrolyzed (by lipases and/or esterases)^[8]. These inhibiting actions could be the cause of *Arogyavardhini Vatis* favourable effects on lipid parameters. It diminishes *Dravatva* and *Snigdhatva* in *Medo Dhatu*^[9].

The key ingredients of *Navak Guggul* are *Sunthi (Zingiber officinale)*, *Marich (Piper nigrum)*, *Pippali (Piper longum)*, *Chitraka (Plumbago zeylanica)*, *Haritaki (Terminalia chebula)*, *Bibhitaki (Terminalia bellirica)*, *Amalaki (Emblica officinalis)*, *Musta (Cyperus rotundus)*, *Vidanga (Embelia ribes)*, and *Shuddha Guggulu (Commiphora mukul)*^[10]. The *Samprapati* of *Sthaulya* may be broken down by drugs with the attributes *Katu rasa*, *Laghu Ruksha guna*, *Ushna virya*, *Katu vipaka*, and *Kapha Vata Shamaka*, which are present in nearly all drugs. *Kapha* and *Meda*, the *Dosha* and *Dushya* involved in *Sthoulya*, are reduced by *Navaka Guggulu's* by virtue of *Katu-Rasa*, *Laghu*, *Ruksha*, and *Ushna-Virya*, *Katu-Vipaka*. *Navaka Guggulu* is a well-known polyherbal formulation containing *Guggulu (Commiphora mukul)* as main ingredient. It is effectively used in *Medoroga* (hyperlipidemia), *Sthaulya* (obesity), and other *Kaphaja roga*. In *Navak guggul*, *Musta* is the medicine act as astringent, anti-helminthic, appetizer, digestive hence it is used in anorexia, vomiting, indigestion. Simultaneously it is useful in enhancing *Raktagni* and reducing *Kleda*. *Vidanga* contain 3 parts of content, it is useful in diseases caused by vitiation of *Meda*. It purifies blood by optimizing its *Agni* and is very useful in disorders of *rasa dhatu* and oedema^[11].

The contents of *Darvyadi kwath* contains *Daruharidra (Berberis aristata)*, *Devdaru (Cedrus deodara)*, *Triphala* and *Nagarmotha (Cyperus scariosus)*. In Ayurvedic classics, the contents of decoction are categorized under *Lekhniya mahakashaya*. Administration of these drugs possessing *Tikta Rasa*, *Ushna Veerya*, *Laghu*, *Ruksha Guna*, *Katu vipak* and *Kapha Vatahara* actions^[12]. *Berberis aristata* is commonly known as *Daruharidra*, *Daru Haldi*, Indian barberry, tree turmeric, *Chitra*. Traditionally, the plant is used as a tonic, demulcent, diaphoretic, diuretic, and alternative to treat diseases like wound healing, skin diseases, rheumatism, snakebite, menorrhagia, jaundice and eyes problem. The main alkaloid component of the plant is berberine which is present either in leaves, Roots, Rhizomes and stem bark. *Lekhniya Karma* of *Darvyadi Kwath* mentioned in Ayurvedic classics. It also has *Kaphaghana* and *Medoghan* properties. *Lekhan* and *Medohara's* activity reduced the amount of *Abadha Meda* in the parts of the system and provide *Laghuta* in the body. All these drugs, *Tikta Rasa* being *Laghu* and *Ruksha* reduces vitiation of and *Meda dhatu* along with reduction in *Amavisha* through its *Deepan*, *Pachan* and *Vishaghna* activities. *Kashaya rasa* with *Ruksha Guna* facilitates absorption of liquefied *Kapha* and *Meda dhatu* and maintain the deranged lipid profile in initial stages of dyslipidemia^[13].

CONCLUSION

Drugs mentioned in Ayurvedic Classics, in *Lekhniya gana* have multifactorious pharmacological activities. Some of the research studies carried out its hypoglycemic activity along with anti-hypolipidemic activity. This observation is significant in treating the *Medadhatu dusti* and its complications.

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