



ROLE OF AYURVEDA IN METABOLIC SYNDROME W.S.R TO MEDO PRADOSHAJA VYADHI –A REVIEW ARTICLE

Ayurveda

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ABSTRACT

Metabolic syndrome is a complex disorder. Physical inactivity or sedentary lifestyle is the key factor for its development. The pathogenesis of this disease is complex and it represents with five components. In Ayurveda, Metabolic syndrome can be taken under broad umbrella of "Medo Pradoshaja Vyadhi". The treatment modalities like udwartana, lekhana basti, shaman aushadhi, pathya apathy palana, vyayama can be incorporated in such condition. These treatment modalities help to remove the harmful metabolites and uproot the cause, which may further manifest into greater complicated condition.

KEYWORDS

Metabolic Syndrome, Medo Pradoshaja Vyadhi, Udwartana, Lekhana Basti.

INTRODUCTION:

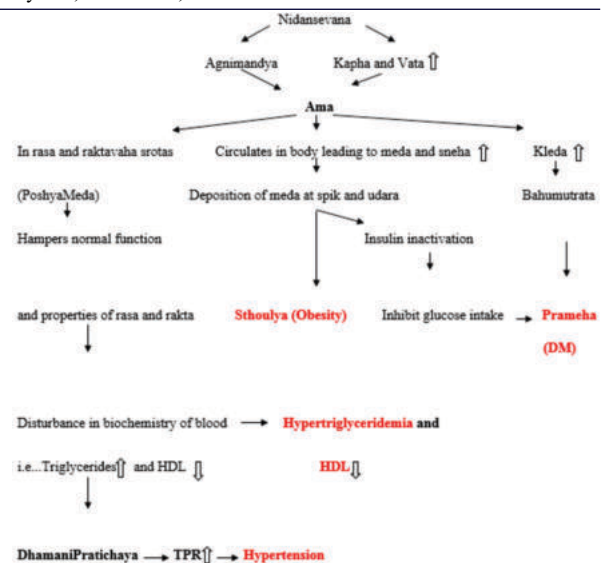
Metabolic Syndrome is an emerging clinical challenge in society, rising at an alarming rate in developed and developing country. Around 11%-41% Indians and around 1 out of 4 adults worldwide are suffering from this syndrome¹. It is also known as Syndrome X or Insulin resistance syndrome. It is a cluster of condition which occurs together increasing risk of Diabetes mellitus, Heart disease, Stroke etc. The health behavior such as unhealthy lifestyle, imbalance dietary habits, inactive physical activities, smoking, etc is the causative factor for metabolic syndrome. Different disease condition arises due to disturbed metabolism of lipids especially FFA (Free fatty acids). This further affects functioning of liver, pancreas, kidneys, heart and worsens the biochemistry of blood by increasing the level of VLDL, LDL, TGL, glucose insulin, endocrine secretion of triglycerides, interleukins etc. The pathogenesis is complex and clinically diagnosed if an individual represents three out of five following components²:

- 1.) Central Obesity: Waist circumference >102cm in male and >88cm in female.
- 2.) Hypertriglyceridemia: Triglyceride level >150mg/dl or specific medication.
- 3.) Low HDL Cholesterol <40mg/dl and <50mg/dl for men and women, respectively, or specific medication
- 4.) Hypertension: Blood pressure >130mmHg systolic or >85mmHg diastolic or specific medication
- 5.) Fasting Plasma Glucose level >100mg/dl or specific medication or previously diagnosed type 2 diabetes.

Metabolic syndrome is reversible by increase in physical activity, change in dietary habits, moderate calorie restriction, quitting habits. Further symptomatic drugs therapies are used to treat different disease condition like antihypertensive, anti diabetic, cholesterol reducing drugs etc³.

In Ayurveda the Metabolic syndrome can be taken under broad umbrella of "Medo Pradoshaja Vyadhi". Meda dhatu is distributed in shareera in two form "poshya and poshaka". Poshaka is mobile in nature, circulating in whole body along with gati yukta rasa and rakta dhatu for nourishment of poshya meda dhatu. In modern this can be taken as cholesterol and lipids which are present in blood. Poshya is immobile in nature and stored in medodhara kala at its site (spik and udara)⁴. This can be correlated with adipose tissue or fat. Metabolism is the function of Agni; therefore agnimandya is the root cause for metabolic syndrome.

Due to nidana sevana such as ati-bhokshana (consumption of excess sweet diet and frequent meal), avyayama (sedentary lifestyle, luxurious lifestyle, use of machines in day to day activity), varunyamcha atisevana (alcohol, soft drinks fermented things etc.), viruddha anna sevana (fast foods, junk foods), diwaswapna (day sleep) there is agnimandya⁵. Agnimandya converts aahara into ama anna rasa which is madhura rasa pradhana. This ama anna rasa circulates in body leading to below given condition (Chart1) which can be correlated with five components of metabolic syndrome.



(Chart no -1)

In above condition the Meda Dushti is in the form of Vruddhi. Therefore rukshana line of treatment should be adopted such as udwartana (powder massage), vyayama(exercise), ruksha basti(rectal administration of drug), guru and apatarpaka aahara and shamana aushadhi sevana⁶. Thus following modes of treatment can be followed in metabolic syndrome:

- 1.) Udwartana–With dravyas like Kola, Kulatha, Triphala etc.
- 2.) Lekhana Basti : Consists of Madhu (Honey) , Saindhav Lavana(Rock Salt), Triphalat Taila Or Moorchit Tila Taila ,Triphala Kwatha, Gomutra, Kshara And Ooshakadi Gana Dravya .
- 3.) Shamana Aushadha –Shilajatu, Guggulu, Gomutra, Triphala, Loharaji, Rasanjana, Madhu etc.
- 4.) Vyayama –In form of Yoga and Pranayama.
- 5.) Pathya Apathya Palana (Dietary Regimens) -
Pathya: Karvellaka, Haridrannna, Foxtail Millet, Jambu, Dadima, Jowar etc
Apathya: Avoiding junk foods, quitting habits etc.

DISCUSSION:

Meda dhatu is having jala mahabhuta pradhanyata so to flush the excess of ambu which is present in intercellular level rukshana is the chikitsa karma need to be adopted.

Udwartana is a procedure of rubbing dry powder over the body with tolerant pressure in opposite direction of hair roots. It helps in kapha and meda vilayana. It is a type of rukshana therapy where Vayu mahabhuta pradhanyata is observed. So it removes the excess of water by doing shoshana karma. In this way it helps to reduce weight by

decreasing the water content. To enhance the medo vilayana karma, ushna virya, laghu, ruksha, tikshna guna dravyas such as kola, kulattha and triphala can be used. Twakastha agni gets stimulated, this leads to absorption and digestion of drug and further does pravilayana of meda dhatu (liquefaction of subcutaneous fat) below skin. The vikruta meda dhatu increases kleda. Due to kleda, srotas (channels) gets obstructed and abaddha meda dhatu (loose fat) is formed. This may lead to dhatu agni mandya (decrease molecular level fire of meda dhatu). Due to ushna, tikshna, laghu property of the dravya and procedure, it acts as meda hara. Due to ruksha guna of dravya and ruksha udwartana, kleda gets absorbed. Thus Abaddhatva of Meda and Kapha gets reduced. The rubbing action helps in the absorption of effusions, relief of blood stasis and carries away the morbid products in the system. The pressure helps the content of the blood vessels moves towards heart, if applied strongly and quickly, it has a stimulating effect. It increases nutrition in tissues, removes fatigue, carries away the increased products of combustion. The skin as well as the structures which lie beneath it is affected by massage. The stored amount of blood may be brought in the systemic circulation instead of them remaining dormant in the stored system⁷.

Lekhana basti produces multidimensional action due to the usage of various combinations of drugs. The specific formulation called "Ooshakadi gana" dravya mainly possesses katu, tikta, kashaya rasa (different inherent tastes of the drugs). Ushna, teekshana, laghu, rooksha gunas are the inherent qualities with ushna veerya (potency) and katu vipaka (taste exerted at the end of digestion). These properties are tejo guna pradhana and are understood to act at the level of jatharagni (digestive fire) enhancing the dhatvagni (metabolism). Thus, the formation of Ama Rasa is avoided and sequential formation of rasa, rakta is achieved resulting in decreased production of meda dhatu. Further it will not cause the occlusion (aavarana) of vata which will not cause increased appetite which is usually set-in due to jataragni deepiti. Hence avoiding the patient indulging in causative factors. The tila taila administered, in obese persons enters minute channels and does kshapana of meda by the sukshama, teekshana, ushna gunas and also has ability to acquire the properties of the other drugs by samskara. The moorchita tila taila has the Vyavayi guna (fast spreading nature) along with the above specified qualities where the absorption is facilitated, carried all over the body performing the required function of lekshana (scraping) and rookshana (drying) leading to nasha of meda (cleansing the accumulated lipids). The kshara guna (alkaline property) effect of gomutra, yavakshara is increased by the synergistic effect of Ooshakadi gana drugs as they also possess similar properties. The complete and final product of Niruha Basti is a hyper-tonic solution. After entering in the large intestine it creates the osmotic pressure gradient, favoring the body fluids transfer from hypotonic to hyper tonic solutions along with toxic materials like LDL cholesterol. This phenomenon preferably helps to drag the toxins (unwanted metabolites) from intercellular to intracellular levels to large intestine and is eliminated out of body. This LDL cholesterol has the affinity for toxins and thus becomes harmful in the body. Rectum being rich in vasculature and the unique preparations of Niruha yoga, drugs are absorbed and cross the rectal mucosa through selective permeability.

The major active principles present in the above formulation are of alkaline nature. This normalizes physiological pH of rectal mucosa facilitating for growth of bacterial flora which results in the stimulation of enzymes for the proper metabolism of cholesterol. Most of the ingredients used in the formulation have been screened for anti-hyperlipidaemic activities. Honey was tested for anti-hyperlipidemic activity by pre-clinical trials on rats and proven efficacious. Sesame protein isolated from Sesamum indicum found to be producing the anti-hyperlipidemic activity in normal and high cholesterol diet fed rats. A study established hypolipidemic activity of triphala in an experimentally induced hypercholesteremic rats on all the lipids and free fatty acids. As mentioned above it is proposed that the drugs absorbed either reaches portal circulation through superior haemorrhoidal veins from upper rectal mucosa or directly enters into the systemic circulation through middle and inferior rectal veins from lower rectal mucosa. These active principles that reaches liver, stimulates production of bile salts resulting in regularization of emulsification of fats thus avoiding fatty accumulation in liver and in blood cells. The active principles directly entering in to circulation reduces the density of blood (sandrata) by scraping the lipids in blood vessels with their alkaline property. Thus avoids the narrowing of arteries (atherosclerosis) which is major risk factor of CHD.

Large intestine contains maximum number of nerve plexuses and lumbosacral plexus that spread all over the body. Vata Dosha is considered to be the entity of functions performed by the above plexuses in the present context. Hereby the virtue of Basti treatment Vata is channelized, causing stimulation of particular endocrine glands to release their enzymes like pancreatic lipase, acetyl-a coenzyme which are responsible for metabolism of lipids. Basti Dravyas are absorbed into Sira or Rasayani(channels) that generally carries Rasa along with Rakta. The increased meda dhatu also goes to deha sanchari(travel all over the body) through these sira and rasayini. It is perceived as increased lipids circulating through rasa and rakta. Hence the drugs administered in the form of Basti have effect even on rakta dhatu which are having the increased circulating lipids⁸.

The aushadhi having virukshana, chedaneeya and lekshaneeya dravyas especially shilajatu, guggulu, gomutra, triphala, loharaji, rasanjana, madhu are advised. Virukshana property helps to reduce meda, while chedaneeya helps to remove obstruction from srotas and lekshaneeya helps in scrapping of Dosha. These drugs help in reduction of serum cholesterol, hypertension and are antiglycemic in property.

Vyayama can be done in form of Yoga. It includes pranayama (breathing exercises), asanas (physical exercises) and meditation. Yoga acts on the leptin level. Leptin decreases the appetite, increases energy expenditures. It also helps in improving mood and reducing stress. This help to reduce food intake allowing individuals to feel more connected to their bodies, leading to enhanced awareness of satiety and the discomfort of overeating. Thus, yoga appears promising as a way to assist with behavioral change, weight loss, and maintenance. It increases the level of dhatvagni, mobilize the meda dhatu. Asanas like ardakatichakrasana, padahastana, parshvatrikonasana these are the Asanas which acts on the metabolic rate. In Surya namaskara the pose ashtanganamaskara acts on the manipuri chakra containing solar flexuses. Yoga acts on the HPA axis i.e Hypothalamo Pituitary Adrenal axis and helps to regulate the secretion of hormones like serotonin, cortisol and neuropeptide by decreasing the stress. During exercise the body needs extra energy, which it gets from burning fat. Fat is released into the bloodstream, where it travels to the muscles to give them the energy they need. This makes the muscles work better and helps shrink fat cells, keeping a healthy weight. Surya bhedana pranayama also acts on the solar flexes, these are coined by the term abdominal brain because it is located in the epigastric region behind the pit of the stomach on either side of spinal column. It has control on main internal organs of man. Conscious breathing during pranayama lowers blood pressure as well as the amount of the stress hormone cortisol that is present in the body. Extended pranayama can lead to a sustained lower heart rate⁹.

Guru and Apatarpaka diet should be advised to patient¹⁰. By virtue of guru dhatu, the food normalizes the aggravated vata and reduces the teekshna agni. The apatarpaka guna helps to reduce the increased medo dhatu. Here guru word represents the qualitative aspect. Food must have katu, tikta, kashaya rasa pradhanyata. In the diet rukshaniya and chedhaniya dravyas should be advised. Ruksha guna helps to reduce the fat and chedaneeya property helps to remove the obstruction. Karaveleka (Bitter gourd) is high in water content (90%) and suppresses the appetite. It has 2.6 gm dietary fiber takes a longer time to break down. Jowar (Sorghum) is rich in policosanols which helps in reducing the levels of cholesterol. Foxtail millet is rich in carbohydrates, the kind which doesn't increase the blood sugar levels immediately. It is rich in dietary fibre and minerals like iron and copper. Due to this, it helps to reduce the levels of bad cholesterol. Fruits are very poor source of protein and fat. In the diet especially fruit salad prepared by amla rasa yukta phala should be advised. Phytochemicals/ phyto-nutrients present in the fruits act as powerful anti-oxidant. Fruits like jambu and dadima mainly contain kashaya Rasa, laghu, ruksha guna which helps to reduce the kapha and meda which is the main culprit in obesity¹¹.

CONCLUSION:

Metabolic syndrome can be taken under "Medo pradoshaja vyadhi". Sedentary lifestyle is the causative factor for it. Lifestyle modification in form of yoga, pranayama, patyapatya palana along with therapeutic measures such as udwartana, ruksha basti and shamana aushadhi can yield fruitful results.

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