



HOLISTIC APPROACH OF AYURVEDA IN METABOLIC SYNDROME

Vimla Kumari Bishnoi¹, Kamini Kaushal², Ashwini K. Sharma³, Rajesh Chandra Mishra⁴,
Pradeep Soni⁵ and Ramendra Sharma⁶

¹P.G. Scholar, ²Professor & Head, ^{3,4}Associate Professor and ^{5,6}Lecturer, PG Department of Dravyaguna, M.M.M. Govt. Ayurved College, Udaipur (Rajasthan), E-mail: kumarivimla1990@gmail.com, Mob.: 9636865749, Corresponding Author: Vimla Kumari Bishnoi

Abstract: Metabolic syndrome is defined by International Diabetes Federation (2006) as presence of central obesity and any two of the following factors:

Raised Triglycerides: > 150mg/dl

Reduced HDL Cholesterol: < 40 mg/dl in Males & <50 mg/dl in Females

Raised Blood Pressure: SBP >130 or DBP >85 mm Hg

Raised Fasting Plasma Glucose (FPG) : > 100mg/dl or previously diagnosed type 2 diabetes.

It is associated with the risk of developing cardiovascular disease, diabetes and stroke. Some studies have shown the prevalence in the USA to be an estimated 34% of the adult population, and it increases with the age. The main sign of metabolic syndrome is central obesity, obesity with adipose tissue accumulation particularly around the waist. It may be correlated with Medovruddhi or Sthaulya. According to modern science, lifestyle modification is the first line of treatment of metabolic syndrome. The daily and seasonal regimen, palliative therapy and Panchkarma procedures in Ayurveda, could be far more effective in the management of metabolic syndrome

Keywords: Ayurveda, Metabolic syndrome, Medovruddhi, Sthaulya, Panchakarma.

Introduction: Ayurveda is a highly evolved and codified system of life and health science based on its own unique and original concept and fundamental principles. It is an applied science, which gives the total knowledge required to maintain the holistic balance of functioning of mind and body. Ayurveda has refrained itself from naming various disorders and syndromes instead it has emphasized on the description of various sets of symptoms with special reference to Dosha, Dhatu, Mala, Agni, Stahna (Site of origin of disease), Ritu, etc.^[1] The definition of health according to Ayurveda is the balanced state of Dosha, Agni, Mind and consciousness.^[2] The term Dosha describes the three principles that govern the psychophysiological response and pathological changes in the body. All the disorders are caused by vitiation of Dosha and the fundamental theory of treatment in Ayurveda is based on restoration of the balance between these systems. Metabolic Syndrome is not directly mentioned in Ayurveda but keen observation on its etiology and signs and

symptoms suggest that it is mainly related to Kapha Dosha.

Aims & Objectives

- To study Metabolic Syndrome according to Modern Science
- To understand the Patho physiology of Metabolic Syndrome from Ayurvedic point of view.
- To review various modalities of treatment of Metabolic Syndrome according to ayurveda.

Materials & Methods

Textual materials available in ayurveda samhitas and commentaries, modern text and related websites have also been searched.

Metabolic Syndrome: Metabolic syndrome (MS) is the clustering of at least three of the five of the following medical conditions. The International Diabetes Federation consensus worldwide definition of MS (2006) is Central (abdominal) obesity – a waist circumference of 40 inches or more in men and 35 inches or more in women. For Asian population, it is 85cm (34 in.) or more in men and 80 cm (32 in.) or more in

women. The reason for lower standards is the fact that Asians appear to have an increased metabolic risk at lower waist circumference and waist – hip ratio than Europeans due to higher level of body fat and abdominal adipose tissue.^[3] And any two of the following

Hypertension: Blood pressure >130/ 85 or treatment of previously diagnosed hypertension

Elevated Fasting Plasma Glucose: >100mg/dl or previously diagnosed type 2 diabetes

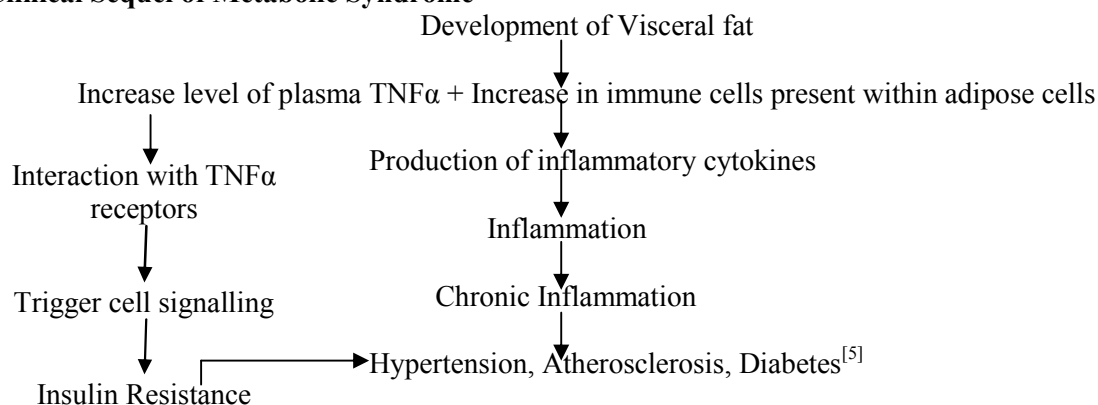
High Sr. Triglycerides: > 150mg/dl or specific treatment for this lipid abnormality

Low HDL level: <40 mg/dl in male; <50mg/dl in females or specific treatment for this lipid abnormality

It is also known as Metabolic Syndrome X, Cardiometabolic syndrome, Syndrome X, Insulin Resistance Syndrome, and Reaven's syndrome (named after Gerald Reaven). Metabolic Syndrome and Pre Diabetes condition can be correlated, but the set of biomarkers differ in both the case. It is associated with risk of developing Cardiovascular disease and Diabetes. Prevalence of MS in urban Indian population is 31.6% with 22.9% in males and 39.9% in females.^[4]

Causes of Metabolic Syndrome: The Metabolic syndrome is thought to be caused by an underlying disorder of energy utilization and storage. This results in accumulation of fats which poses significant cardiovascular risk. However, obesity without metabolic syndrome

Clinical Sequel of Metabolic Syndrome



Sign & Symptoms of Metabolic Syndrome

- Central Obesity-It is the key feature of the syndrome, being both a symptom and a cause of it. Increase in adiposity is often reflected in high waist circumference, both often results from and often contributes to insulin resistance. However it can be observed in non obese patients.
- Hypertension

does not confer a significant cardiovascular risk, whereas metabolic syndrome without obesity is associated with significant risk of Diabetes and cardiovascular disease.

- Genetics
- Ageing
- Diet (particularly sugar sweetened beverages)
- Disturbed chronobiology/sleep
- Sedentary lifestyle
- Mood disorders
- Alcohol abuse
- Stress

The risk factors of metabolic syndrome are as follows

Insulin Resistance: It is the condition in which the cells of the body don't respond to Insulin. Insulin facilitates the utilization of glucose by the body cells. Thus the body becomes unable to cope up with the rising blood sugar levels. Insulin Resistance is closely connected to having excess weight in the belly.

Obesity: Especially abdominal (central) obesity.

Unhealthy Lifestyle: Eating a diet high in fats and trans fats with sedentary lifestyle with little or no exercise increases the risk multiple times.

Hormonal Imbalance: PCOS is the hormonal condition associated with and increases the risk of metabolic syndrome. Cortisol, the stress hormone, poses the threat of obesity and thus contributes to the risk factors.

- Decreased fasting Sr. HDL level
- Elevated fasting Sr. Triglycerides level
- Impaired Fasting Plasma Glucose level
- Insulin Resistance

Associated Conditions

- Hyperuricemia
- Fatty Liver
- PCOS
- Erectile Dysfunction

- Acanthosis nigricans

Ayurvedic Perspective of Metabolic Syndrome: The three humours of the body are the pillar for the health as the origin, maintenance and destruction of the body depends on them. The Vata Dosha is responsible for all the kinetic activities in the body, Pitta Dosha bring about digestion and transformation of substances and Kapha Dosha bring about nourishment or sustains the Sharira and act as building block of the body. Kapha Dosha is anabolic in nature. A delicate balance is maintained between these three systems for maintenance of health.

The Kapha Dosha has Guru, Snigdha, Shita, Manda, Mridu, Sthira and Pichchila properties. Due to these properties, Dardhya (Strength), Shaithilya (Flabbiness), Upachaya (Overweight), Karshya (Underweight), Utsaha (vigor), Aalasya (Laziness), Vrishta (libido & fertility), Kleebata (sterility), etc. these group of antagonistic actions are designated to Kapha Dosha.^[6] In balanced state, Kapha Dosha is responsible for strength, vigour and vitality of the body.

Nanatmyaja Vyadhi are the classical representation of vitiation of typical Dosha. In the Nanatmyaja Vyadhi of Kapha Dosha, Staimitya, Guru Gatrata, Balasaka (Sthulangata according to Chakrapani), Apakti, Hridayopalepa, Dhamani Pratichaya, Ati Sthaulya, Shitagnita are mentioned. Chirakaritva is another characteristic sign of Kaphaja Vikara due to which prolonged course of treatment with strict Pathyapathya is required for remission of these diseases.^[7]

Kapha disorders are mainly Santarpanjanya. Santarpana refers to substances or actions that nourish the body tissues. In Charak Sutrasthana 23, Snigdha, Madhura, Guru, Pichchila Aahara; Navanna, Nava Madya, Aanupa and Jaliya Mamsa, Gorasa (Cow's milk), Gaudika (a type of alcohol), Pishta Anna in Atimatra are Aaaharaj Hetu while Cheshta Dwesha (little or no physical activity), Diwaswapna (daytime sleep) and Shayya Aasana Sukha (sedentary lifestyle) are the Viharaj Nidana of Santarpanjanya Vyadhi. All these factors are associated with the accumulation of Vikruta Kapha Dosha in particular which undergoes six steps before the classical presentation of disease.

Pathophysiology of Kaphaja Santarpanjanya Vyadhi

Kapha Chaya: The Chaya is the initial phase of Dosha vitiation. The vitiated Kapha start to get

accumulate in its own sites especially Amashaya. Kapha Chaya shows symptoms like Gaurava, Aalasya and apathy towards Kaphaja Aahara Vihara.

Kapha Prakopa: This is the advanced stage of accumulation in its own abode. Seasonal, Daily variation, etc. affect this stage. Anna Dwesha and Hrudayotkleda are the classical symptoms of Kapha Prakopa. The vitiation of Dosha is site bound up to this stage.

Kapha Prasara: In this stage, the Kapha Dosha is further vitiated and leaves its abode and spread in proximity. Symptoms like Aarochaka, Avipaka, Aangasada and Chhardi are evident in this stage. This stage embarks the beginning of propagation of vitiated Dosha throughout the body.

Sthanasamshraya of Kapha Dosha: The vitiated Kapha Dosha propagates throughout the body and affect the Kha Vaigunayukta Dushya /Srotasa i.e. immune compromise tissues/channels and produce symptoms accordingly. Here the Dhatu Sarta (efficient condition of Dhatu) comes into play. Only vitiated Dosha is incapable of producing the disease. It is the presence of vulnerable Dushya which completes the occurrence of disease. The symptoms vary according to Dushya and a varied range of symptoms that can be considered as Purva Rupa (prodromal symptoms) of a disease can be seen in this stage. Metabolic syndrome can be considered as the Purvarupa of diseases like Diabetes Mellitus and CAD.

Vyakti: This is the stage of presentation of classical symptoms of disease. In this stage the disease can be recognized by its name. E.g. Medoroga, Prameha, etc.

Bheda: This is the last phase of pathology of any disease. In this stage the Doshik classification of disease is clearly evident. Complications of the disease can be incorporated in this stage. E.g. Vataj Prameha, Kaphaja Prameha, Atisthaulya, etc.

The Ashraya Ashrayee Sambandha^[8] of Dosha and Dushya also plays a major part in the course of disease and its due complications. Kapha Dosha is the Ashraya of majority of Dushya (Rasa, Mamsa, Meda, Majja, Shukra, Mutra, Purisha, etc.) i.e. these components of body are directly affected by any vitiation in corresponding Dosha. This fact increases the gravity of Kaphaja disorders making their prognosis poor.

Santarpanjanya Vyadhi: Prameha (Diabetes), Pidaka (Boil), Kotha (Urticaria), Kandu

(Itching), Pandu Roga (Anemia), Jwara (Fever), Kushta (Skin disease), Aampradoshaja Vikara (Digestive disorders), Mutra Kriccha (Dysuria), Arochaka (Anorexia), Tandra (Drowsiness), Klebya (Sterility), Ati Sthaulya (Morbid obesity), Aalasya (Lethargy), Guru Gatrata (Heaviness in the body), Indriya Lepa (altered senses), Srotolepa, Buddhi Moha (altered intelligence), Pramilaka (Lost in his own thoughts) and Shophya (Inflammation).

Treatment of Santarpanjanya Vyadhi: Acharya Vagbhata has proposed the line of treatment in one sutra “Tatra Medo Anil Shleshma Nashanam Sarvamishyate”^[9] Acharya Charaka has emphasized on the execution of Panchakarma first and then drug therapy owing to the seriousness of the threat proposed by the Santarpanjanya Vyadhi. Vamana (Therapeutic emesis), Virechana (Therapeutic purgation), Raktamokshana (Therapeutic blood letting), Dhumpna, Swedana (Sudation) along with Vyayama (Exercise) and Upvasa (Fasting) are the procedures of choice in these diseases. The Katu, Tikta, Kashaya, Tikshna, Ushna and Ruksha Gunatmaka Aushadhi are useful in these diseases.

Drug Therapy (Aushadhi Yoga)

- Decoction of Triphala, Aaragvadha, Patha, Saptaparna, Kutaja, Mustaka and Nimba
- Decoction of Nagarmotha, Devdaru, Triphala, Aaragvadha, Patha, Gokshura, Khadira, Nimba, Haridra, Daruharidra and Kutaja
- Triphala, Trikatu, Vidanga and Ajmoda Churna along with Saktu + Taila + Madhu in Agaru Kwatha.
- Takra Haritaki Prayoga
- Triphala Churna + Guduchi Swarasa
- Rasanjana / Mahat Panchmoola / Shuddha Guggulu / Shuddha Shilajatu with Agnimantha Kwatha

Ashraya	Ashrayi	Associated condition of Metabolic syndrome
Kapha Dosha	Rasa Dhatu	CAD
	Twak Upadhatu	Psoriasis, Psoriatic arthritis ^[10]
	Meda Dhatu	Diabetes Mellitus, Dyslipidemia, Lipodystrophy, Fatty Liver disease
	Majja Dhatu	Neurological Disorders ^[11]
	Shukra Dhatu	Erectile Dysfunction, Decreased Testosterone, PCOS 43

Treatment of Ashraya (here Kapha Dosha) consequently have an effect on Ashrayi Bhava (Dushya aka Dhatu). Santarpanjanya Vyadhi are caused due to consumption of factors that vitiate mainly Kapha Dosha. These diseases are difficult to treat (Krichha Sadhya) because if Kapha Nashaka treatment is given, it can vitiate

- Vidangadi Yoga – Vidanga, Shunthi, Yava, Yavakshar, Aamlaki, Lauha Bhasma
- Haritaki + Madhu Prayoga
- Vyoshadi Saktu, Vyoshadi Yoga

Pathya–Apathya

- Nitya Vyayama (Daily Exercise)
- Jeerne Aashi (eating food only when the previous meal is digested)
- Yava Godhuma Bhojana (eating wholesome meal prepared from and Barley)
- Pathya Aahara – Kulattha, Jowar, Yava, Mudga, Madhu Udaka, Dadhi Mastu, Takra, Arishta
- Pathya Vihara – Chinta, Shodhana and Ratri Jagarana
- Diwaswap Varjya (No day time sleeping)
- Pranayama and Yoga

Discussion

Metabolic syndrome is rapidly spreading epidemic all over the world. The statistics show that 31.6% of the Indian urban population is suffering from this syndrome. It mainly affects adult population and prevalence increases with the age. Many of the conditions in the metabolic syndrome produce no signs and symptoms. The first line of treatment is lifestyle modification however only symptomatic treatment is recommended if the risk factors are not reduced significantly in three to six months of lifestyle modification. e.g. Cholesterol reducing drugs for lowering cholesterol, Diuretics & ACE inhibitors for hypertension, etc.

In such a scenario, Ayurveda concept of Santarpanjanya Vyadhi Chikitsa can be handy. The metabolic syndrome and vitiation of Kapha Dosha can be embossed by the fact that the pathophysiology of metabolic syndrome can be correlated with the various Santarpanjanya Vyadhi and a number of associated disorders that can be explained by Ashraya–Ashrayi Samanbha of Kapha Dosha.

the Vata Dosha as both of these possess antagonistic properties. The first and foremost symptom of Kapha Vriddhi is Agnisadanam. Agni is the entity that brings about transformation / conversion in any form. Dhatvagni is the Agni related to biochemical reactions related to particular Dhatu. The altered

lipid metabolism can be credited to Medo Dhatwagnimandya that result in Vikruta Medo Vriddhi and consequently altered Lipid Profile.

An authentic therapy is one that alleviates the disease without any complication and side effects. Nidana Parivarjana is the first and the foremost part of any treatment. Along with this, due to severity of situation, Panchakarma is advised by the Acharya and then the drug therapy. The drug therapy is mainly Lekhana and Langhana in nature and aims at the emaciation of Kapha Dosha and Medo dhatu. The Yoga and Pranayama reduces external as well as internal stress and act as source of positive energy.

Conclusion

Ayurveda can play a pivotal role in the treatment of metabolic syndrome. Apart from lifestyle modification, ayurveda emphasizes on Shodhana or Panchakarma for the cleansing of the body from the toxins. This facilitates the better absorption and better action of drug in the body. The drug therapy aims at Lekhana of Kapha Dosha and Meda Dhatu which are underlying cause of metabolic syndrome. The Yoga and Pranayama harmonizes the various body systems.

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