



Title: Metabolic Syndrome In Ayurveda & Its Prevention

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Abstract:

Metabolic syndrome, refers to a group of conditions common in people with insulin resistance, including higher than normal blood glucose levels, increased waist size due to excess abdominal fat (Obesity), high blood pressure and abnormal levels of cholesterol and triglycerides in the blood. People with metabolic syndrome have an increased risk of developing type 2 diabetes and CVD. More than 10 million cases of metabolic syndrome occurs per year in India. The prevalence of metabolic syndrome increases with age and about 40% of people above 60 years are affected with metabolic syndrome. Diabetes occurs as chronic sequel of metabolic syndrome. In the whole world, nearly about 24% of the population is suffering from diabetes. As per WHO, its percentage may go as high as 40-45% in 2020. So, there is intense need to know the graveness of the disease and to understand the possible ways of prevention.

Keyword: increased blood glucose, obesity, metabolic syndrome

Introduction:

Metabolic syndrome, refers to a group of conditions common in people with insulin resistance, including higher than normal blood glucose levels, increased waist size due to excess abdominal fat (Obesity), high blood pressure and abnormal levels of cholesterol and triglycerides in the blood. People with metabolic syndrome have an increased risk of developing type 2 diabetes and CVD. More than 10 million cases of metabolic syndrome occurs per year in India. The prevalence of metabolic syndrome increases with age and about 40% of people above 60 years are affected

with metabolic syndrome. Diabetes occurs as chronic sequel of metabolic syndrome. In the whole world, nearly about 24% of the population is suffering from diabetes. As per WHO, its percentage may go as high as 40-45% in 2020. So, there is intense need to know the graveness of the disease and to understand the possible ways of prevention.

Key words – obesity, increased blood glucose levels,

Review Of Literature :**Causes of Metabolic Syndrome As per Modern Science :**

1. Obesity, Overweight, and physical inactivity,

2. High intake sugar beverages,
3. Alcoholic drinks,
4. Oily and high fat food stuff,
5. Disturbed biological sleep,
6. Mental stress and
7. Family history of diabetes.

The same causes have been mentioned in Ayurvedic literature in S. Ni. 6/3, S.Su. 15/14, C.Su. 28/15, C.Su. 28/9.

Risk Factors for Metabolic Syndrome As Per Ayurveda :

Diwaswapna Avyayam Aalasya Prasaktam Sheet Snigdha Madhur Medya Drava Annapana Sewinam Pramehi Bhavishyati / S.Ni. 6/3

Avyayamat Diwaswapnat Medyanam Cha Ati Bhakshanat / Medowahini Dushyanti VarunyaHa Cha Ati Sewanat // [C. Vi. 5/16]

1. *Diwaswap* - (Day Sleeping)
2. *Avyayam* - (Lack of exercise)
3. *Aalasya* - (Laziness)
4. *Medya Annapan* - (Consumption of fatty food)
5. *Snigdha Annapan* - (Consumption of oily food)
6. *Madhur Annapan* - (Consumption of Sweet food)
7. *Varuni Sevanat* - (Consumption of Alcohol)

This above said aetiology leads to obesity and diabetes in future (*Prameha Bhavishyati*) [S. Ni. 6/3] and also in S.Su. 15/32. The same thing had been mentioned by acharya Charaka also C.Vi. 5/16 & C.Chi.6/4.

This has been proved beyond doubt that excessive consumption of fatty and high carbohydrate substances, Excessive intake of alcohol and sedentary lifestyle and lack of exercise leads to excessive deposition of fat in the body causing obesity and metabolic syndrome.

Features of Metabolic Syndrome In Ayurveda :

Alpe Api Cheshtite Shwsam Sfik Stana Udar Lambanam / [S.Su. 15/14]

Medasanshraya –Ninditani (Stul Sambadhhatwen) Pramehanam Purvarupani / [C.Su. 28/15]

- 1. *Alpe Cheshtite Shwasam* - Exertional Breathlessness
- 2. *Udar Lambanam* - Pendulous/fatty abdomen
- 3. *Stana Lambanam* - Breast enlargement
- 4. *Sphik Lambanam* - Buttock enlargement
- 5. *Ganda Vruddhim* - Cheek enlargement
- 6. *Jangha Vruddhim* - Thigh enlargement
- 7. *Uru Vriddhim* - Calf enlargement
- 8. *Ayatha Upachaya* - Improper metabolism
- 9. *Ayatha Utsah* - Lack of energy
- 10. *Dehe Chikannata* - Increased wetness on body
- 11. *Trut* - Increased Thirst
- 12. *Swadu Asyam* - Sweetness of mouth

Ref. – S.Su. 15/14, C.Su. 28/15, C.Su. 28/9,

Prevention Of Metabolic Syndrome :

Many studies have found that :

- lifestyle changes, such as being physically active and
- losing excess weight, by dietary restriction and exercise

are the best ways to reverse metabolic syndrome.

Principles Of Lifestyle Management in Metabolic Syndrome As per Ayurveda:



*Differe Vyayam YogaiHi VividhiHi
PragadaiHi UdwartanaiHi Snan Jal
AwasekaiHi / Sewyet Twag Ela Agaru
ChandanadaiHi VilepanaiHi Cha Aashu Na
Santi MehaHa* // [C.Chi. 6/50]

1. Different types of exercise (Vyayam YogaiHi VividhaiHi)
2. Deep Massage with applications (Pragadh UdwartanaiHi)
3. Water Bath (Snan)
4. Cream application of Sandle etc (Agaru , Chandan VilepanaiHi)
5. Heat/Sun Bath (Ava-sekaiHi)

Those who follow it, doesn't suffer from diabetes easily. [C.Chi. 6/50]

Importance Of Exercise As per Acharya Sushruta[S.Chi. 24/38-44]

- Exercise boosts the appetite and increases the metabolizing power (Diptagni).
- Exercise removes the laziness and offers health (Analasya) .
- It is the best for reducing weight (Sthulaya Apakarshanam).
- It is most beneficial to those who take high carbohydrate diet (Snigdha Bhojinam)

Modalities of Exercise As Per Ayurveda:

- *Pravruddha MehaHa Tu Vyayamani Yuddha Krida Gaja Turaga Ratha Padaticharya Anya Astra Upastra Wa Sanwaran* | [S. Chi. 11/11]
- In advanced diabetes, one should perform exercise, wrestling, elephant riding, horse riding, chariot riding, walking etc.

Modalities of Exercise As Per Ayurveda:

- Those (with high income group) and having increased diabetes should exercise in the form Wrestling, Playing, Elephant

Riding, Horse Riding, Walking. [S.Chi. 11/11]

- Walking reduces cough and obesity. [S.Chi. 24/79]
- Those (with low income group) should walk as much or more than 100 Yojan in daily division. [S.Chi. 11/12]
- Rest other should dig well in one year by themselves. [S.Chi. 11/12]

Principles Of Dietary Management :

- **Reduce weight By :**
- Low caloric food intake (Low carbohydrate)
- Alcohol Restriction
- Intake of Fruits and food with low glycemic index
- Burning the calories with exercise
- **Saturated fats** - High-fat dairy products and animal proteins such as beef, sausage contain saturated fats. Get no more than 7 percent of daily calories from saturated fat.
- **Trans fats**- These types of fats are found in processed snacks, baked goods, shortening and should be avoided completely.
- **Cholesterol**- Sources of cholesterol include high-fat dairy products and high-fat animal proteins, egg yolks, shellfish, liver, and other organ meats. Don't take more than 300 milligrams (mg) of cholesterol a day.
- **Sodium** - Aim for less than 2,300 mg of sodium a day.
- **Healthy carbohydrates**-Focus on the healthiest carbohydrates, such as fruits (Apple, watermelon, jamun), vegetables (Palak, Methi, Tamatar, Bhindi, Baigan, Patta Gobi, Kareka, Lauki,etc) whole grains, legumes (Matki, Mung) and low-fat dairy products (Tak).



- **Fiber-rich foods** -Fiber can decrease the risk of heart disease and help control blood sugar levels.
- **Foods Oils (Good fats)** containing monounsaturated and polyunsaturated fats — such as Sesame (Tila), Ricebran, Mastard (Sarso), Linseed (Jawas/Alsi), avocados(nashpati), almonds(Badam), pecans, walnuts (Akhrot), canola (Toriya), olive (Jaitun) and peanut oils (Mungfali) can help in lowering the cholesterol levels.

Dietary Principles In Prevention of Metabolic Syndrome :

- *Sarva Cha ParihareyuHu Sauvirak Tushodka Shukta Maireyaka Sura Asava Toya PPayaHa Tail Ghrut Ekshuvikar Dadhi Pishtanna Amla Yawagu Panakani, Gramya Aanup Audak Mansani Cha* / [S.Chi. 11/5]

Foods to avoid in DM

Sushrutokta Concept:

Restriction of :

- **Alcoholic Drinks** (*Sura, Sauvirak, Tushodak, Maireyak, Shukt, Aasava*)
- **Sweets** (*Ikshu Vikar*)
- **Milk/Dairy Products** (*Paya, Ghrut, Dadhi*)

- **Oils** (*Taila*)
- **Flour of Cereals & Pulses** (*Pishtanna*)
- **Paste of sour food** (*Amla Yawagu,*)
- **Non Veg food** (*Gramya, Aanoop, Aaudak Mansa*)
- **Sweet Beverages** (*Panak*)
- All above measures emphasizes restriction on over consumption of these high carbohydrate containing food and drinks by diabetic individuals. [S.Chi. 11/5].

Material & Method:

Literary review of metabolic syndrome was carried out from modern and Ayurvedic point of view. It was studied on the basis of aetiology, clinical features and preventive strategy.

Diagnostic Criteria For Metabolic Syndrome as American Heart Association :

1. **Abdominal Obesity** – A waist circumference of 102 cm or more in Men and 88 cm or more in females.
2. **Sr. Triglyceride** 150 mg/dl and above.
3. **Fasting Blood Sugar** 100 mg/dl and above.

Causes Of Metabolic Syndrome	
As Per Modern Science	As Per Ayurveda
Sedentary Life Style	<i>Swapnasukham</i>
Physical inactivity,	<i>Avyayam & Aalasya</i>
Oily and high fat food stuff,	<i>Medya & Snigdha Annapan</i>
High intake of sugar beverages,	<i>Madhur Annapan</i>
Alcoholic drinks,	<i>Varuni Sevanat</i>
Disturbed biological sleep,	<i>Diwaswap</i>

Mental stress and	
Family history of diabetes.	<i>Sahaj Prameha Hetu</i>

Features Of Metabolic Syndrome	
As Per Modern Science	As Per Ayurveda
Abdominal Obesity –(Pot Belly) – due to deposition of excess fat on the abdomen.	<i>Udar Lambanam</i> <i>Stana Lambanam</i> <i>Sphik Lambanam</i>
Exertional dyspnoea	<i>Alpe Cheshtite Shwasam</i>
Easy Fatiguability	<i>Ayatha Utsah</i>
Increased Thirst	<i>Trut</i>
	<i>Swadu Aasyam</i>

Complications Of Metabolic Syndrome	
As Per Modern Science	As Per Ayurveda
People with metabolic syndrome have an increased risk of developing type 2 diabetes and CVD.	<i>Shleshmal Ahar Sevino –Avyayamino –Ati Snehat Medo Janyati Tat Ati Sthaulyam Apadyati -- Kapha-Medo Niruddhamargatwat Shesha Dhatawo Na Apyayante, Alpa Prano , Prameh –Vikaranam [S.Su.15/32]</i>

Discussions:

All the Acharyas, invariably mentioned the lifestyle factors such as lack of exercise, excessive sleeping, comfortable seat and bed as the risk factors for diabetes and metabolic syndrome and exercise can delay the progression of diabetes. The aetiology of metabolic syndrome is described S. Ni. 6/3 and also in S.Su. 15/32, C.Vi. 5/16 & C.Chi.6/4. Whereas the features of metabolic syndrome in Ayurveda are mentioned in S.Su. 15/14, C.Su. 21/9 and C. Su. 28/15. Acharya Sushruta not only described the treatment of metabolic syndrome in great detail but also mentioned the various ways to

prevent it through healthy diet and lifestyle modification.

Results and Conclusion:

- Metabolic syndrome is well documented in Ayurveda.
- High carbohydrate, fatty, oily diet, day sleeping, lack of exercise are the major risk factors for the development of metabolic syndrome.
- Exercise remains the main part in prevention and controlling of metabolic syndrome.
- Avoiding diet rich in carbohydrate, fat and cholesterol can actually prevent the progression of metabolic syndrome to diabetes and Ayurvedokta Kudhanya like Jowar, Niwar, Kodrava can help in achieving this.

Abbreviations :

- S.Ni. – Sushrut Nidansthana
- S.Chi. – Sushrut Chikitsasthana
- S.Su. – Sushrut Sutrashtana
- C.Chi. – Charak Chikitsasthana

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