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Original Research Article

Medovaha srotas and its relation to sthauylata (Obesity)

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ABSTRACT

Background: The internal transport system of the body, represented by Srotamsi has been given a place of fundamental importance in Ayurveda both health and disease. Srotas are described as channels through which oozing of the fluids takes place. There are 13 srotas as described by Acharya Charak and 11 pairs as per Acharya Sushruta. Both have described the Medovaha Srotas and the vitiation of which leads to diseases of which Sthauylata (Obesity) is one. According to Acharya Sushruta, the concept of Prakriti (body constitution) of an individual is derived by the predominance of Doshas at the time of fertilization. The entire health of an individual depends upon the Prakriti and health of a person is being affected according to it.

Aim of the Study: The present study is being done to find out the basic concept of medovaha srotas described in Ayurveda whose vitiation is the cause of medovridhi (overweight and obesity) and its relation with the prakriti.

Materials and Methods: It was a clinical study conducted on total 150 cases in State Ayurvedic College and Hospital, Lucknow. The main tools used to conduct this study were the B.M.I criteria recommended by W.H.O and proforma of Prakriti Parishan.

Results: The vitiation of medovaha srotas affects all the prakriti person almost in same manner i.e., fat accumulate beneath the skinfold and thyroid hormones level has relation with overweight and obesity. However the number of kaphaja prakriti persons showed that these are more prone to develop Obesity/overweight as a result of Medovaha srotodusthi.

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1. Introduction

Acharya Charak stated the unique concept of Srotas in the 5th chapter of Vimana sthana. He states that “Srotas are the channels which carry Dhatus undergoing transformation”.¹ Without any exception, Acharya Sushruta also explained the concept of srotas. Acharyas considered that the process of normal to abnormal physiology i.e. disease process takes place in the channels where doshas affect the dhatus and produce abnormality.

The recent advancement in modern medical science for prevention and management of diseases are based on Genomic theory, which includes various genes, its relationship with each other and the differences in the genetic makeup of different individuals. According to Acharya Sushruta, the concept of Prakriti (body constitution) of an individual is derived by the predominance of Doshas at the time of fertilization.² The entire health of an individual depends upon the Prakriti and health of a person is being affected according to it.

At present scenario in India, the prevalence of overweight and obesity has increased rapidly. According to ICMR-INDIAB study 2015, prevalence rate of obesity and

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central obesity varies from 11.8% to 31.3% and 16.9% to 36.3% respectively. Various studies have shown that the prevalence of obesity among women were significantly higher as compared to men. Obesity is one of the main medical and financial burdens for the government. The association between overweight and obesity with many non-communicable diseases, forecasts of the future prevalence of overweight and obesity can help inform policy in a country where around one sixth of the world's population resides.

The present study is being done to find out the basic concept of medovaha srotas described in Ayurveda whose vitiation is the cause of medovridhi (overweight and obesity) and its relation with the prakriti. The study of Medovaha Srotas has been aimed at the conceptual study of the Srotasas with special reference to Medovaha Srotas, which involves the descriptions available at various places in Vedas, Upnishads, ancient religious literatures and Ayurvedic classics and their logical understanding with the help of modern science. Thereafter survey of obese patient and their symptoms, which are caused by pathological states of Medovaha Srotas has been done.

The clinical signs and symptoms of the Medovaha Srotodusti⁴ as described by Acharya Charak has been searched in patients whose BMI is greater than 30 and attempt has been made to make logical correlation with modern disease entities.

2. Materials and Methods

The study has been carried out under the following material and methods: -

1. Literary study
2. Clinical study

2.1. Literary study / Conceptual study

Study was undertaken through critical review of relevant literature in order to bring out the classical concept of Srotas in Ayurveda so that appropriate clinical application may be made.

1. This part of study was initiated by selection of various terms, which were used for Srotas in different classical literature from Vedic, Puranic, Upnisada period, Greek literature and Ayurvedic texts.
2. Then, the study of Meda with its anatomico-physiological aspects described in Ayurveda was carried out before the description of Medovaha Srotas and its Moola.
3. The specific study of Medovaha Srotodusti and its modern interpretation. Different modern literature regarding fat absorption, pool of fat, accumulation of fat in intracellular space, circulation and distribution of fat in the body, dyslipidemia, atherosclerosis,

obesity and its complications studied to understand the correlation between the symptoms, applied anatomy and pathological progression of vitiation of Medovaha Srotas and Sthaulyata (obesity).

2.2. Clinical study

For clinical study total 150 cases were registered from O.P.D. and I.P.D. of State Ayurvedic College and Hospital, Lucknow and cases referred from any other medical.

The comparative analysis of relevant literature had been done to verify the subject of the topic of the thesis.

2.2.1. Prakriti Parikshana

A standard proforma is prepared in Post Graduate department of Rachana Sharir of State Ayurvedic College and Hospital, Lucknow on the basis of signs and symptoms of different Prakritis given in Ayurvedic Samhitas. This proforma was used to find out the Prakriti of the patients.

Afterward the clinical observation, result was analyzed on statistical ground using mean, mode, median and correlation coefficient with graphical representation to find out any correlation of the disease occurring due to vitiation of Medovaha Srotas in an individual subject of unique Daihik Prakriti for the confirmation of hypothesis that, "An individual is more susceptible for disease caused by vitiation of Doshas which constitute the Prakriti of individual."

2.3. Study population

This study was conducted in 158 patients of relevant category out of which 120 patients turned up for complete investigation and they formed a subject of study and Data collection. 120 patients were categorized into two groups. Group-1 with B.M.I. between 30-35Kg/m² and Group 2 with B.M.I. greater than 35 kg/m². The observations were analyzed using SPSS software 16.0 and results were obtained. For selection of cases following exclusion and inclusion criteria were being adopted.

2.4. Exclusion criteria

1. Patients of extreme age groups (below 05 yrs and above 60 yrs).
2. Patients whose BMI was lower than 30.
3. Patients suffering from Cushing's syndrome.
4. Patient taking those drugs which cause retention of water in the body for example, taking steroids for a long time.

2.5. Enrollment criteria

1. Patients with either sex with age range in between 05-60 yrs.
2. Patients were selected from the OPD/IPD, comes under the category of grade 2 and 3 overweight

according to W H O criteria i.e BMI, greater than 30.

Table 1: W.H.O. classification

BMI	W.H.O.	Population Description
<18.5 kg/m ²	Underweight	Thin
18.5-24.9 kg/m ²	Normal	Healthy, normal
25-29.9 kg/m ²	Grade 1 overweight	overweight
30-39.9 kg/m ²	Grade 2 overweight	Obesity
> 40.0 kg/m ²	Grade 3 overweight	Morbid Obesity

3. Discussion

The term Srotas comprehends all channels big and small, perceptible and imperceptible that compose the internal transport system of the body as several of its more important paryayas, (synonyms) described by Charak are Srotamsi, Sira, Dhamanis, Rasayanis, Rasavahinis, Nadis, Panthanas, Margas, Sharir Chidras, Samvruta Samvrutani, Sthanas, Ashayas, Niketas.¹

Classical texts on Ayurveda, especially Charak Samhita and following this work, Astanga Hridaya have described the thirteen types of Srotas,³ their Mula and the symptomatology of pathological involvements of Srotamsi in nija (idiopathic or constitutional) types of diseases. Prakriti analysis is an important and unique fundamental theory of Ayurveda which involve understanding health and disease through tridosha. The concept involves the three doshas i.e., Vata, Pitta, Kapha and how human physiology is affected by it.

Each constitution type has a specific physiology, physical and psychological characteristics which depend upon the predominance of each doshas in an individual.

Kapha predominance individuals have gentle personality, have broader bone structure and stable structure, growth anabolism, storage, maintenance of structure and stability are contributed by kapha doshas.⁴

Connecting the Ayurvedic concepts of Prakriti with metabolic activities, it is seen that various diseases are related to a particular genotype. As the vitiation of the medovaha srotas plays a role in development of various metabolic diseases like obesity, diabetes etc. Prakriti is also an important factor in it along with srotas.

Kapha prominent prakriti subjects were found to have higher serum levels of cholesterol, triglycerides, low density lipoproteins and very low-density lipoproteins. These lipid molecules are digested and absorbed by small intestine and may be compared with amarasa (undigested food substance) which further is converted into chylomicrons, amarasa produced due to kapha dominant diet, adhyasana (frequent eating), avyayama (lack of exercise) and Divaswapana (day

sleep) moves within the body and causes fat deposition which produces excessive stoutness.⁵

Ayurveda opines that decreased level of medodhatwagni (tissue metabolism) than jatharagni (digestive power) produces Ama, which consequently leads to sthaulya.⁵ It can be seen that kapha dominant prakriti persons are more likely to have higher lipid profile values. Hence, the lifestyle changes and regular exercise must be followed by kapha dominant prakriti subjects.

Kapha dominant prakriti subjects were having greater association of BMI with anthropometric and skinfold thickness parameters. BMI is the most commonly used measure for monitoring the prevalence of overweight and obesity at population level. As per Ayurveda, due to obstruction of medovaha srotas (micro and macro body channels which carry fat) by fatty molecules, the vata present in digestive tract whips up the agni and absorbs the food. Excessive eating produces more production morbid fatty molecules, leading to sthaulya and diabetes.

Subscapular and midaxillary fold measurements are showing fat accumulation in trunk region and Triceps skin fold for peripheral fat accumulation. Hence result indicates that more fat accumulates in trunk region. Inference of study also present that vitiation of medovaha srotas affects all the prakriti person almost in same manner i.e., fat accumulate beneath the skinfold and thyroid hormones level has relation with overweight and obesity however number of kaphaja prakriti showed that these persons are more prone.

BMI is increased, cholesterol and triglyceride level in the blood also increase. It means that per patient become more prone to complications such as atherosclerosis, dyslipidemia etc., with increasing obesity.

4. Conclusion

Inference of study also present that vitiation of medovaha srotas affects all the prakriti person almost in same manner i.e., fat accumulate beneath the skinfold and thyroid hormones level has relation with overweight and obesity however number of kaphaja prakriti showed that these persons are more prone. BMI is increased, cholesterol and triglyceride level in the blood also increase. It means that per patient become more prone to complications such as atherosclerosis, dyslipidemia etc., with increasing obesity. Therefore, the present study has been carried out from a new angle and it has provided several useful and important observations. It would give new dimension in the understanding of Srotas especially Medovaha Srotas(channels carrying lipids) in relation to prakriti. It has also given much fruitful important information, which will act as lead for future studies in this area of important knowledge.

Table 2: Showing incidence according to sex in patients suffering from disease to Medovaha srotas

Sex	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Male	18	25%	10	20.8%	28	23.3%
Female	54	75%	38	79.2%	92	76.7%
Total	72		48		120	

Table 3: Showing incidence of socioeconomic status in patients suffering from disease to Medovaha srotas

Socio-economic status	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Higher	6	8.3%	6	12.5%	12	10%
Medium	66	91.7%	42	87.5%	108	90%
Lower	0		0		0	
Total	72		48		120	

Table 4: Showing distribution of cases according to exercise habit of patients suffering from disease to Medovaha srotas

Exercise habit	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Do	16	22.2%	30	62.5%	46	38.3%
Don't	56	77.8%	18	37.5%	74	61.7%
Total	72		48		120	

Table 5: Showing incidence of Prakriti in 120 patients suffering from disease to Medovaha srotas

Prakriti	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Vattika Dominance	12	16.7%	2	4.2%	14	11.7%
Pattika Dominance	22	30.6%	10	20.8%	32	26.7%
Kaphaj Dominance	38	52.7%	36	75%	74	61.6%
	72		78		120	

Table 6: Showing incidence of blood pressure in 120 patients suffering from disease to Medovaha srotas

Blood pressure	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Normal	30	41.7%	6	12.5%	36	30%
Hypertension	42	58.3%	42	87.5%	84	70%
Total	72		48		120	

Table 7: Showing incidence of oedema in 120 patients suffering from disease to Medovaha srotas

Oedema	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Present	20	27.8%	14	29.2%	34	28.3%
Absent	52	72.2%	34	70.8%	86	71.7%
Total	72		48		120	

Table 8: Showing incidence of Xanthesma in 120 patients suffering from disease to Medovaha srotas

Xanthesma	Group-1		Group-2		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Present	14	19.4%	14	29.2%	34	28.3%
Absent	58	80.6%	34	70.8%	86	71.7%
Total	72		48		120	

Table 9: Showing correlation of other parameters with BMI

S.No.	Correlation with BMI	Coefficient of correlation(r) and its statistical significance	
1	Waist	r=0.1749	p>0.05
2	Hips	r=0.5498	p<0.001
3	Wrist	r=0.0429	p>0.05
4	Forearm	r=0.1078	p>0.05
5	Subscapular	r=0.6173	p<0.001
6	Midaxillary	r=0.6178	p<0.001
7	Triceps	r=0.4693	p<0.01
8	Haemoglobin	r=0.0248	p>0.05
9	Fasting blood Glucose	r=0.1671	p>0.05
10	Random blood Glucose	r=0.0356	p>0.05
11	Cholesterol	r=0.3116	p<0.01
12	Triglyceride	r=0.1696	p>0.05
13	HDL	r=0.0386	p>0.05
14	LDL	r=0.0564	p>0.05
15	VLDL	r=0.1012	p>0.05
16	T ₃	r=0.2566	p>0.05
17	T ₄	r=0.3963	p<0.02
18	TSH	r=0.2511	p>0.05
19	Calories Intake	r=0.3627	p<0.05

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5. Sutra sthan in Charak Samhita (with English translation). In: Agnivesha, Asthauninditiya Adhyaya . vol. Vol II. Varanasi: Chaukhambha Sanskrit Series; 2008.

6. Conflict of Interest

None.

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