

**A SCIENTIFIC STUDY OF LIPID PROFILE IN MADHUMEHA W.S.R TO TYPE-2  
DIABETES****\*<sup>1</sup>Dr. Kumar Ashok and <sup>2</sup>Dr. Shailendra Kumar Singh**<sup>1</sup>M.D, Roga Nidan Evam Vikriti Vigyan, Govt. Ayurvedic P.G. College and Hospital, Sampurnanand Sanskrit University, Varanasi- 221002.<sup>2</sup>M.D. (Kayachikitsa), PH.D. (Kayachikitsa), M.B.A.(Health Care & Hospital Addm.) P.G.D.N.Y.S, Assit. Prof. - Rognidan Evam Vikriti Vigyana, Govt. Ayurvedic P.G College & Hospital Sampurnanand Sanskrit University Varanasi - 221002.**\*Corresponding Author: Dr. Kumar Ashok**

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**ABSTRACT**

Ayurveda is a 'Science of Life' which provides curative as well as preventive principles for healthy and long life. The ancient Ayurvedic classics texts namely the Samhitas of Charak, Sushruta and Vagbhata and the subsequent treatises have invariably given detailed description of the disease diabetes, its causes, types, pathology and the line of management and treatment both preventive and curative. Diabetes Mellitus (DM) is a group of metabolic disorder of carbohydrate metabolism in which glucose is underutilized, producing hyperglycaemia. Furthermore, it is proposed that underutilization of glucose is associated with change in lipid profile. Change in lipid profile is also well related with severity of DM.

**KEYWORDS:** Diabetes Mellitus, Madhumeha, Lipid profile, Blood glucose, Cholesterol.**INTRODUCTION**

Ayurveda is the traditional science of medicine practiced in India since century. It is the science for long life which cures not only the disease but also teaches how to live healthy and prevents the disease.

All "western behavioral patterns" like luxurious life style, less physical activity, stress regarding job, junk-frozen-fried foods, irregular timing of food, injudicious intake of food, genetic predisposition and less awareness towards exercise, outdoor games. All these factors together have made a fatal package named Diabetes Mellitus. It is very similar to disease Madhumeha mention in Ayurvedic classics.

Madhumeha is a clinical entity in which patient voids Mutra having similarity with Madhu either in its colour, taste, smell or appearance. Acharya Sushruta has termed as 'Kshaudrameha' to 'Madhumeha'. Kshaudra is one of the varieties of Madhu. Acharya Charaka and Sushruta has mentioned specific colours of Mutra of Madhumehi patient as 'pandu varna' and 'kshaudra rasa' respectively. Sushruta and Vagbhata stated that all types of Prameha can be nomenclatured as Madhumeha because if they kept untreated or ill-treated for long time, they ultimately get converted into Madhumeha. In Madhumeha body acquires sweetness.

Ojomeha is described by Acharya Charaka to denote Madhumeha. Ojomeha is one of four types of Vataja variety of Prameha. In this type, depletion of Oja through urine takes place by vitiated Vata dosha along with the changes in taste and appearance.

According to the modern science two types of diabetes referred as type-1 (insulin dependent) and type-2 (non-insulin dependent). Type-2 diabetes mellitus is a syndrome usually characterized by variable degrees of insulin resistance, impaired insulin secretion and increase glucose production.

Diabetes mellitus is a major health problem for the world in 21st century. At least 171 million people worldwide have diabetes. This figure is likely to be more than double by 2030. Around 3.2 million death every year are attributable to complication of diabetes, six death every minute. India is having the 18% of total diabetic population of the world and highest in the world.

Diabetes mellitus is a chronic endocrine disorder, characterized by hyperglycaemia resulting from absolute or relative insulin deficiency. There are a number of different causes of diabetes but by far the majority of cases are classified as either type 1 or type 2 diabetes.

The pathophysiology of type 1 diabetes derives from the autoimmune destruction of insulin-secreting pancreatic  $\beta$ -cells, resulting in insulin deficiency and subsequent hyperglycaemia. Type 1 diabetes accounts for about 10-15% of all diabetics. Type 2 Diabetes is characterized by abnormal insulin secretion due to peripheral resistance and accounts for 85-90% of all persons with diabetes. While type 1 Diabetes usually manifests itself in childhood or adolescence and type 2 diabetes at a later stage, clinical manifestation and progression vary considerably and some patients might not be clearly classified as having either type 1 or 2 initially. Type 1 diabetes may occur at any age and with late onset usually shows slower progression, and type 2 manifests itself more and more often earlier in life, even in childhood and adolescence, sometimes allowing for accurate diagnosis only over time.

In the uncontrolled state, both types of diabetes are characterized by increased hepatic glucose output and decreased glucose uptake in the muscles and adipose tissue. Patients with type 1 diabetes are at risk of severe lipolysis leading to diabetic ketoacidosis. The remaining insulin activity in type 2 diabetes usually inhibits lipolysis and ketone production such that these patients are less likely to develop ketoacidosis but are more likely to develop a hyperosmolar, non-ketotic state.

Worldwide, the incidence and prevalence of diabetes continues to rise due to both an increasing incidence of type 1 diabetes in children, and of type 2 diabetes due to lifestyle changes particularly in developing countries. In sports, diabetes is found at all levels of competition, and becomes a more common feature given the growing number of master athletes and because type 2 diabetes is occurring at increasingly younger ages. Also, given the markedly improved management possibilities of both types of diabetes more diabetic patients are able to compete at elite levels.

Physical exercise entails multiple physiological and psychological benefits for the diabetic patient. In type 1 diabetes, physical exercise plays a fundamental role in both physical and mental development. In type 2 diabetes, it is a major factor in improving insulin sensitivity and plasma glucose control. Accordingly, participation in sports should be encouraged and therapy optimized to enable these individuals to meet their full potential.

Diabetes characteristically presents with a history of symptoms and signs associated with hyperglycaemia: polydipsia, polyuria, polyphagia (hyperglycaemic triad), weight loss, fatigue, skin and genital itching, dry mouth, stomatitis, visual disturbances, poor wound healing, recurrent infections, arrhythmia, confusion and (in men) erectile dysfunction and balanitis. It should be noted however that type 2 diabetes is often asymptomatic and identified through targeted screening programs.

A broad spectrum of vague symptoms including lethargy, nausea, blurred vision and recalcitrant fungal or bacterial infections may be the first early clues. Diabetes may also present as an acute hyperglycaemic crisis manifested by stupor, coma, or seizures. This metabolic disorder results in long term disease like Microangiopathy (Nephropathy, Neuropathy and retinopathy) and Macroangiopathy like coronary artery disease.

Dyslipidaemia is one of the burning problems in today's era. Lipid & lipoprotein abnormalities are extremely common in general population. Cardiovascular disease (CVD), which encompasses conditions such as coronary heart disease, stroke, peripheral artery disease, is the leading cause of mortality worldwide. Dyslipidaemia is commonly seen in diabetes. Type-2 diabetes is one of the most common causes of hyperlipidaemia. The relationship between hyperlipidaemia and vascular complication of diabetes has long been of interest because both tend to occur with greater frequency in type-2 DM. Insulin resistance cause hyperglycaemia and hyperlipidaemia and have additive cardiovascular risk. Hence identification, critical evaluation and follow-up of serum lipid profile in type-2 DM continues to be important.

#### AIMS AND OBJECTIVE

1. To study the etio-pathogenesis of madhumeha from Ayurveda and modern point view.
2. To evaluate the exact relationship between diabetes and lipid profile.
3. To study the relationship between serum lipid profile and blood glucose.

#### MATERIAL AND METHODS

##### Study design-

Content of material was collected from both Ayurvedic and Modern text books and also Websites, journals and magazine etc.

This is an observational study; for this study clinically diagnose and conform 30 patients of madhumeha are taken from opd and ipd of P.G. deptt. of roga nidana evam Vikriti Vigyan, Govt. Ayurvedic college and Hostital Varansi.

#### OBSERVATION AND RESULT

- 46.6% of patients were from age group 41-50 years. While 40% patients were from age group 51-60 years.
- 70% patients were males and 30% patients were females.
- 40% patients were from middle class, lower middle class 10 % and patients from upper middle class 20%, 13.3% patients were from poor background and rich classes were 26.6%.
- 50% patients had chronicity between 1 to 5 yrs and 26.6% patients were having chronicity of between 5 to 10 year. 10% patients were having chronicity of

less than 1 year. 13.3% patients were having chronicity of more than 10 years.

- 40% patients were having positive family history.
- The 36.6 % patients were vegetarian, 63.6% patients were having maximum mixed type diet.
- 46.6% was addicted of tea/coffee. 40% was addicted to smoking. 33.3% patients were addicted to Alcohol. 26.6% patients were addicted to tobacco/pan.
- 56.6% patients were having sedentary nature of work. 30% were medium work and 13.3% patients were involved in heavy work.
- 53.3% of the patients were reported to have sedentary life style followed by 10 % & 20 % of the patients which were having physical & mental strain respectively, while 16.6 % of the patients were having both physical & mental strain involving life style.
- 60% patients were having Diwaswapan and 40 % patients were having Ratrijagarana as the irregularity.
- In Sharira Prakruti, maximum 50% patients were having vata-Kapha Prakruti. 33.3% patients were having Pitta-Kapha Prakruti. While 16.6% patients were having Vata-Pitta Prakruti. In Manasa Prakruti, patients of Tamas Prakruti were highest 40%. Patients with Rajoguna were 26.6% and only 6.6% patients were having Satvik Prakruti.
- In the Ahara Nidana 40% patients were taking Shita Ahara. 50% patients were taking Snigdha Ahara. 60% patients taking Madhura rasa. 36.6% patients were taking Medhya(Alcohol). 40% patients were taking Dadhi. 43.3%. Patients were taking Aanoop mamsa. 60% patients were taking Payansi. 46.6% patients were taking Gud or Gud vikruti often in their diet. 70% patients were taking Guru Ahara.
- Aasyasukha is the main cause with the percentage of 60%. Divaswpa & Avyayama is the 2nd leading cause with the percentage of 53.3% & 73.3%. Patients having Vegadharana were 30%. Ratrijagarana were 40%.
- There is average data between <170 - >250 of blood sugar is taken for the compression of lipid profile to blood sugar. After the Average observation it was observed that out of total 30 patients 10% patients were having blood sugar < 170 mg/dl, 30% patients were having 170-200 mg/dl. 53.3% patients were having 200 -250mg/dl. And 6.6% patients were having >250 mg/dl.
- The serum lipid profile of 30 patients of Type-2 DM was studied. Maximum no of patients i.e 40% shows serum cholesterol between 250-300, maximum 53.3% patients show serum triglyceride between 200-499, maximum 46.6% patients having HDL-C <35, maximum no of patients i.e 43.3% patients having LDL-C >160.

The values of the entire lipid fraction TG, TC, LDL-C, VLDL-C were significantly higher in diabetes. All the

fraction showed a progressive increase severity of diabetes.

## CONCLUSION

From this study, it was evident that DM has a real impact on lipid metabolism. This was substantiated by the fact that all the lipid fractions were elevated in diabetes when compared to healthy controls. Hence, hyperlipidaemia is quite common in diabetes and hypertriglyceridemia is the most common abnormality.

The age and sex of the patients did not have much influence on serum lipids. The duration of diabetes and the severity of diabetes had marked influence on lipid levels. Hence, good control of diabetes would help to check the alterations in lipid levels.

Diabetic patients with complications tend to have higher levels of lipid fractions (TGs, cholesterol, and LDL-C) and lower levels of HDL-C. This suggests that there appears to be some relation between the genesis of various vascular complications (micro vascular and macro vascular), and the presence of lipid abnormality. It is difficult to point out a particular factor as the cause as multiple mutually interacting factors determine the presence or development of these complications. As good control of diabetes is shown to keep the lipid levels in near normal range, it appears important to aim at critical control of DM to prevent or at least postpone the onset of various complications.

## REFERENCES

1. Charaka Samhita, Vidhyotini Vyakhaya, By Shir Satyanarayana Shastri, Published by Chaukhamba Bharti Academy.
2. Charaka Samhita Uttarardha, Vidhyamanorma Vykhaya, By Vidhyadhara Shukla, Published by Chaukhamba Bharti Academy.
3. Charaka Samhita with the Ayurveda Deepika commentary of Chakrapanidatta, Chaukhambha Surbharati Prakashana, Varanasi.
4. Charaka Samhita text with English translation and critical exposition based on Chakrapanidatta commentary by Dr. Ram Karan Sharma and Vd. Bhagwan Dash.
5. Susruta Samhita of Maharsi Susruta, By Dr. Anant Ram Sharma.
6. Sushruta Samhita with the Nibandha Samgraha Commentary of Sri Dalhanacharya, Chaukhambha Surbharati Prakashan, Varanasi.
7. Chakradatta by Shri Chakrapanidatta, by Shri Indudeva Tripathi, Chaukhambha Sanskrita Sansthan, First Edition, 1991.
8. Ashtanaga Hridaya of Acharya Vagbhata Virachita, Vidhyotini Vyakhaya, Sampadaka Vd. Yadunandana Upadhyay.
9. Madhava Nidana by Madhavakar with Madhu Kosha and Vidyotini Commentary, Edited by S. Shastri and Y. Upadhyaya, Chaukhambha Sanskrit Sansthan, 1987.

10. Introduction to Kayachikista: C. Dwarkanath, Chuakhambha, Varanasi.
11. DM Vasudevan Srikumari S- Text book of biochemistry, 4th edition.
12. PJ Mehta's Practical Clinical Medicine by PJ Mehta.
13. Harrison-Principle of internal medicine, 15th Edition, Edited by Kart. J.Isselbacher, Mc.Grow Hill International Book Company.
14. Pathology Illustrated by A.D.T.Govan, P.S.Macfarlane & R.Callander, Churchill Livingstone, 2nd Edition, 1986.
15. Practical management of Diabetes, by Ajit Kumthekar, 1st Edition, 2010.
16. Prameha & Madhumeha by Dr.V.B.Athavale, Chaukhambha Sanskrit Pratishthan, Delhi, 1st Edition, 1999. .
17. Textbook of Pathology by Harshmohana, 5th Edition. Websites
18. [www.google.co.in](http://www.google.co.in)
19. [www.care.diabetesjournals.org.com](http://www.care.diabetesjournals.org.com)
20. [www.diacare.health.com](http://www.diacare.health.com)