



A Literature Review - Complications of Diabetes Mellitus / Madhumeha (Prameha) Upadrava

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Introduction

According to American Diabetes Association, Diabetes is a group of metabolic diseases characterised by hyperglycemia resulting from defects in insulin secretion, insulin action or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction and failure of various organ especially the eyes, kidneys, nerves, heart and blood vessel.

In Charaka Samhita, A person passes urine like Madhura (sweet) , Kashaya (astringent) , Pandu (pale) and Ruksha (rough) is called "Madhumehi" [C.S.N. 4/44]. The basic concept of Ayurveda for diagnosed Prameha is Prabhut- Mutrata (Increased urine quantity) and Avil-Mutrata (turbid urine). [A.H.Ni. 10/7 // S.S.Ni. 6/6] According to Ashtanga Hrudayam Madhumeha is a condition in which a person passes Madhu (Honey) like urine (sweet). [A.H. N. 10/18]

Ancient Ayurvedic Acharya have grouped 20 Prameha in which Madhumeha is one of them. If all of them are neglected or not be treated, ultimately land up in Madhumeha (Diabetes Mellitus) [S.S.Ni. 6/27]. In that case a person passes Madhur Mutra (sweet) and whole body of Madhumehi become sweet (Madhuryacha Tanorataha) [A.H.Ni. 10/21]

Prevalence rate -

The global Prevalence rate of diabetes among adults over 18 years of age has increases from 4.7% in 1980 to 8.5% in 2014. Diabetes prevalence has been rising more rapidly more rapidly in middle or low-income countries. According to International Diabetic Federation (IDF) in year, 2014 worldwide about 387 million people were afflicted with diabetes the majority of which are age between 40 to 59 and 80% of them live in low and middle-income countries. According to study carried out in year, 2013 by the Indian Council of Medical Research India has 62.4 million people with diabetes out of which more than 90% have type 2 diabetes.

Aim and Objective -

To study the complication of Madhumeha with prevalence rate with special reference to Diabetes Mellitus.

Aetiology of Madhumeha

Ayurveda literature mentioned aetiology of Madhumeha that Sahaja (Bijadoshat) for type 1 diabetes [C.C.6/57] and Guru (heavy to digest), Snigdha (unctuous) Amla (sour) and Lavana Rasa (salt) , Swapnsukha (excessive sleep) Ashya Sukha (sedentary life style) Avyayama (lack of exercise) are responsible for type 2 diabetes mellitus.[C.C.6/4]

According to causes of diabetes are hereditary (juvenile onset) and other is excessive eating habit, lack of physical activity, due to over nutrition, sedentary habitat.

Patho-physiology of Madhumeha

गुरुस्निग्धाम्ललवणान्यतिमात्रं समश्रताम् | नवमन्नं च पानं च निद्रामास्यासुखानि च ||
 त्यक्तव्यायामचिन्तानां संशोधनमकुर्वताम् | श्लेष्मा पित्तं च मेदश्च मांसं चातिप्रवर्धते ||
 तैरावृतगतिर्वायुरोज आदाय गच्छति | यदा बस्तिं तदा कृच्छ्रो मधुमेहः प्रवर्तते ||
 स मारुतस्य पित्तस्य कफस्य च मुहुर्मुहुः | दर्शयत्याकृति गत्वा क्षयमाप्यायते पुनः ||

(च.सू. 17/78-81)

Management of Prameha

स्थूलः प्रमेही बलवानिहैकः कृशस्तथैकः परिदुर्बलश्च |

संबृंहणं तत्र कृशस्य कार्यं संशोधनं दोषबलाधिक्यस्य || (च.सू. 17/15)

Complication of Prameha

Diabetes is a group of chronic diseases characterised by hyperglycemia. Chronic hyperglycemia injures the human body in many different ways. Charaka had stated Prameho Anushanginam, it means that Prameha is a group of disorders in which several other diseases or complications are associated [C.S.25/40]. Sushruta and Vagabhatta mentioned separate complications of Vataja, Pittaja, and Kaphaja Prameha. However, Charaka explained it as a whole means only Prameha complication.

Table-1

Table Showing Upadrava of Prameha With Their Specific Prevalence [C.N. 4/48]

Sr. No.	Complication according to Ayurveda	Literary meaning	Complication according to modern science	Prevalence Rate
1	Trushna	Thirst	Polydipsia	8.5%
2	Atisara	Loose motion/diarrhoea	Autonomic neuropathy	3.7%
3	Jwara	Fever/ Increase in temp	Improper hygiene due to chronic illness or hormonal imbalance	--
4	Daha	Burning sensation	Diabetic neuropathy or vitamin deficiency	8%
5	Daurbalya	Generalised weakness	Osmotic diuresis leading to electrolyte imbalance / obesity induced symptoms	28-66%
6	Arochaka	Tastelessness due to sweet taste in mouth	Peripheral neuropathy	75%
7	Avipaka	Indigestion	Autonomic neuropathy	75%

8	Putimasa	Infection of skin	Hyperglycaemia leading to skin infection and delay recovery from infection	31.7%
9	Pidaka	Boil, carbuncle, abscess and ulceration	Diabetic ulcer	61% type 2 DM
10	Alaji	Infection of skin	Hyperglycaemia leading to skin infection and delay recovery from infection	31.7%
11	Vidradhi	Inflammation/ infection of skin	Hyperglycaemia leading to skin infection and delay recovery from infection	31.7%

Table-2**Table Showing Upadrava With Their Prevalence of Vataj Prameha]**

Sr. No	Vataj Prameha Upadrava	Complications of Diabetes Mellitus	Prevalence rate
1	Hrudagraha (Cardiac arrest)	Coronary Heart Disease	68%
2	Lolyam (Desire for sweet)	Hyperglycaemia / obesity induced symptoms	8.5%
3	Anidra (Insomnia)	Peripheral neuropathy	86%
4	Stambha (Stiffness)	Peripheral neuropathy / hyperglycemias leading to infection	10-20% D.M.
5	Kampa (Tremors)	Peripheral neuropathy	0.4-5.6%
6	Shulam (Pain)	Peripheral neuropathy	21-34%
7	Badhapurishatavam (Constipation)	Autonomic neuropathy	31.2%
8	Udavarta	Autonomic neuropathy	-
9	Shosha (Muscles wasting)	Hyperglycaemia leading to skin infection	30%
10	Kasa (Cough)	Hyperglycaemia leading to infection	15%
11	Shwasa (Dyspnoea)	Hyperglycaemia leading to infection / pneumonitis / Ketoacidosis	16.1% type 2

Table-3**Table Showing Complication of Pittaj Prameha Upadrava**

Sr. No.	Pittaj Prameha Upadrava	Complication according to modern science
1	Vrushanayorvadaranam	Peripheral neuropathy

2	Bastibhedo	
3	Mendratodo	
4	Hrudishula	Coronary heart disease
5	Amlika	Autonomic neuropathy
6	Jwara	
7	Atisara	
8	Vamathu	
9	Arochaka	
10	Paridhupanam	
11	Daho	Peripheral neuropathy
12	Murchha	Ketoacidosis/ hyperglycemia leading to infection
13	Pipasa	Hyperglycemia leading to infection
14	Nidranasha	
15	Panduroga	
16	Pitvinmutranetratavam	

Table-4**Table Showing Upadrava of Kaphaj Prameha**

Sr. No.	Complication	Complication according to modern science
1	Makshikopasarpanam	Hyperglycaemia leading to glycosuria and infection
2	Aalasya	Obesity induced symptom
3	Masopachay	Hyperglycaemia leading to infection
4	Pratishyay	
5	Shaithilya	Autonomic nervous system
6	Arochaka	
7	Avipaka	
8	Kaphapraseka	
9	Chhardi	Hyperglycaemia leading to infection
10	Nidra	
11	Kasa	
12	Shwasa	

Table- 5**Table Showing Complication of Diabetes Mellitus**

Acute	Chronic	
	Macro-vascular	Micro-vascular
Diabetic Ketoacidosis	Diabetic myonecrosis	Diabetic cardiomyopathy
Diabetic hypoglycaemia	Stroke	Diabetic nephropathy
Dehydration	Coronary artery disease	Diabetic neuropathy
Diabetic coma	Skin infection	Diabetic retinopathy
		Diabetic encephalopathy

Discussion & Conclusion:

Madhumeha is one of the type of Vataj Prameha. Prameha of any type if left untreated or improperly treated lands up in to Madhumeha. The aetiology, patho-physiology, symptoms and complication described appear similar in Ayurved and in modern.

The complications of diabetes mellitus occurs due to the hyperglycemia because of insulin deficiency, insulin resistance, or totally absent of insulin. In which Kaphaja Prameha is an insulin independent Prameha and its complication is caused due to deficiency of insulin because of malfunctioning of pancreas. Pittaja Prameha is an insulin independent Prameha and its complications is caused due to insulin resistance or deficiency because of abnormal functioning of thyroid gland, adrenal gland, liver and alpha cells of pancreas. Vataja Prameha is an insulin dependent diabetes and its complication is cause because of total absence of insulin, which cause due to autoimmune or idiopathic destruction of beta cell of pancreas.

The prevalence rate of diabetes mellitus and their complications are increasing day by day. It can be prevent with the help of diet planning, Yoga, daily exercise, Ayurvedic medicine and by changing life style. At the end of this study it came to found that complications of diabetes explained in modern medicines had been already mentioned by Charaka, Sushruta & Vagbhata thousands of years ago at various places, which seems to be very suitable.

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