A CRITICAL CORELATION AND PATHOPHYSIOLOGY OF MICROVASCULAR COMPLICATION OF DIABETES i.e. PERIPHERAL NEUROPATHY WITH UPADRAVA OF PRAMEHA VYADHI IN AYURVEDA

Brijesh Kumar¹, Richa Anand², Anil Kumar Singh³

¹Ph.D. Scholar, Department of Bioinformatics, Indian Institute of Information Technology, Allahabad, Uttar Pradesh, India
²,³Professor, Department of Dravyaguna, I.M.S, B.H.U, Varanasi, Uttar Pradesh, India

ABSTRACT

The prevalence of diabetes is rapidly rising globally at an alarming rate and the disease is now amongst the most common non-communicable disease globally. In Ayurveda Acharya charak also include this under eight major diseases which show the significance of the disease. Diabetic neuropathy is one of the most common complications associated with significant morbidity and mortality. It is an outcome of metabolic derangement due to prolonged hyperglycemia in diabetes. All the symptom which explain under heading of upadrava by Acharys in Ayurveda, almost similar to the sign and symptom explain under diabetic neuropathy. Thus in this article an effort has been made to understand the concept of diabetic neuropathy as already explained in Ayurveda.

Key words: diabetes, upadrava, neuropathy

INTRODUCTION

Diabetes mellitus refer to a group of common metabolic disorder that shares the phenotype of hyperglycemia. Several distinct type of diabetes exist and are caused by a complex interaction of genetics and environmental, factor contributing to hyperglycemia include reduce insulin secretion, decrease glucose utilization and increase glucose production. Diabetes mellitus is the leading cause of end stage renal disease (ESRD), Nontraumatic lower extremity amputation because of diabetic peripheral neuropathy (DPN).

The word, Prameha is derived from the root ‘mih sechane’ meaning ‘watering’. In reference to disease of human beings, it many have a meaning of passing urine, qualified by prefix ‘Pra’ meaning excess in both frequency and quantity.

Prameha is derived from Pra+Miha. A condition characterized by excessive outflow of urine (shabda kalpadruma).

Madhumeha is incurable and caused by aggravation of vata. Naturally, ojas is of sweet taste. Due to the roughness, vata converts it into that of astringent taste and takes it into the urinary bladder; this causes madhumeha (Diabetes mellitus)¹. Patients pass urine, sweet and astringent taste, pale in color and unctuous.

Madhumeha roga is arising by two ways:
1. Aggravation of vata, due to dhatukshya (body constitution)
2. Obstruction to the srotos (channels)

Etiological factors aggravate, kapha dosha and medo dhatu, which leads to obstruct the channels and increases the vata, finally manifest the Madhumeha. On the other hand, mental stress and strain, food, drinks and activities that increases the vata and dhatu kshya causes aggravation of vata and leads
to Madhumeha. These types of patients are generally emaciated.

In Ayurveda twenty type of prameha is mentioned which are categorized under vataj, pittaj and Kapah Prameha. Madhumeha is one of the types of vataj prameha and this describe in the last of the list of twenty prameha by charak.

Diabetic neuropathy is manifest as polyneuropathy, mononeuropathy, and/or Autonomic neuropathy. The development of neuropathy correlates with the duration of diabetes and glycaemic control. Additional risk factor are BMI (Greater the BMI, the greater the risk of neuropathy) and smoking presence of cardio-vascular disease, Elevated triglyceride and hypertension is also associated with diabetic peripheral neuropathy. Both myelinated and unmyelinatid nerve fibre are last.

In Ayurveda diabetic peripheral neuropathy (DPN) is explained under the heading of upadrava (complication) of Diabetes mellitus where explains that Angasuptata (numbness) Angasada (lethargy) Harsha (tingling sensation) Daha (burning sensation) Shosha (wasting of muscle) etc. appear as complication of Madhumeha which is almost similar to the description of diabetic peripheral neuropathy.

**Review of Prameha Vyadhi**

Prameha is a disease which includes all those clinical condition which are characterized by increase quantity of urine associated with or without the increase frequency of urine.

In Ayurveda twenty type of prameha described which are again classified in to three group based upon doshic predominance i.e. Ten from kapha dosha predominance, Six from pitta and Four from vatik dosha predominance. Madhumeha in comes under vatik prameha and is elaborated in last of all the prameha by charak. At other place acharya explain that all the prameha get converted in to madhumeha if they are not controlled and treated very well.

In long untreated patient of Madhumeha when there is increased consumption of diet which increase the kapha dosha and also increase blood sugar level and also due to lack of physical exercise so finally there is dosha and dhatus dusti will take place and upadrava i.e. complication of madhumeha appear which in clinically similar presentation as per by Diabtes peripheral neuropathy.

**Etiology (Nidana) of Prameha**

All those factors which increase the quantity of kapha dosha in the body are the causative factor of disease like increase consumption of fat, carbohydrate and sugar rich diet with reduce, physical activity fallow sedentary life style.

The etiology of disease prameha is broadly classified in the three parts-
1. Hereditary diabetes – Sahaj Prameha – Bija dosha
2. Familial diabetes – Kulaj Prameha
3. Acquired diabetes i.e. Apathya Nimitaj which include both Aharaj and Viharaj cause.

**Upadrava of Disease Diabetes Vis a Vis Peripheral neuropathy and its path physiology**

Disease prameha involve dosha are kapha, Pitta and vata and dushyas are ambu, medo, mamsa, vasa, lasika, majja, rakta, shukra, rasa and ojas which are responsible for twenty different type of prameha.

"Bahu drava sleshma vikara" i.e. extra kleda and kapha in prameha take place. Increase quantity of prakupita kapha is responsible of Ama because of improper production of Anna rasa i.e. digestive juice become of improper digestion of food due to increase kapha dosha.

Increase Ama dosha causes shrotodusti which leads to formation of Aparipakwa dhatus.
Increases *kapha* along with *pitta meda mamsa* produce obstruction i.e. *Avaran* in flow of *vata dosha* so vitiation of *vata taka* place which lead to production of *Madhumeha* because, remove the *ojas* from body to outside via *mutrasaye*. Again due to vitiation of *vata dosha* and also due to production of *aparipakwa dhatu* due to *Ama dosha*, this cause elimination" of *dhatus* via passage of *mutrasaye* that result *dhatukshays* stage.

Both vitiated *vata* and *dhatu kshaya* stage are responsible for production of *upadrava* i.e. complication of disease *Madhumeha* which produce the symptom like *Daha*, *Anga sada* (numbness) *Shoola* (pain) *Harsha* (tingling sensation) *Mamsha shosha* (wasting of muscle) *Kampa* (tremor) etc which are almost similar symptoms as per explain under heading of Diabetic peripheral neuropathy.

**Symptom of Peripheral neuropathy in Ayurveda**

All the *upadrava*, i.e. complication which seen in later stage of *Madhumeha*, are almost similar to the symptoms as described under diabetic peripheral neuropathy. *Daha* (burning sensation) *Kampa* (tremor) *Shools* (Pain) *Mamshashosha* (Muscle wasting), *Angamarda* (Malaise) *Stambha* (Stiffness). All these symptoms are describe under *upadrava* of disease *madhumeha*.

**DISCUSSION**

There are twenty type of *prameha* in described in *Ayurveda*. *Madhumeha* is one of them which is due to predominance of *vata* and is describe in last of all which show the importance of *madhumeha* among all.

*Madhumeha* may be compared to diabetes mellitus because of similar etiology pathogenesis & clinical feature.

Disease *madhumeha* is considered an incurable disease because this is due to *vata* predominance and also exclusive *dhatu kshaya* take place along with *ojas kshaya* also.

Negligence of this disease and also due to inadequate treatment in the later stages *upadrava* of *madhumeha* appears which is clinically similar to disease diabetic neuropathy.

Diabetes mellitus comprises a group of metabolic disorders that share the common phenotype of hyperglycemia. Common presenting symptom of Diabetes mellitus included polyurea, polydipsia, weight loss, fatigue, weakness, blurred vision, frequent superficial infection and poor wound healing.

It has been found in various studies that over 50% of diabetic subject in India have a poor glycemic control that lead to complication related with diabetes. These complications both macrovascular and microvascular cause significant morbidity and mortality among diabetic subjects. Diabetes neuropathy has common risk factor for all micro vascular complication such as age, duration of diabetes, glycemic variability, HbA1C, smoking and alcohol consumption Diabetic neuropathy has subclinical and clinical manifestation depending upon class of nerve fiber involved.

Diabetic neuropathy cannot be accounted for mere presence of one sign, symptom or test alone its diagnosis requires more elaboration and generally, a minimum of two abnormalities form symptom and sign, nerve conduction abnormality, quantitative sensory test and quantitative autonomy test are recommended.

**CONCLUSION**

Micro vascular and macro vascular complication as chronic complication complications of diabetes, largely account for diabetes related mortality and morbidity. Diabetes especially type-II, has become the principle cause of micro vascular complication in approx 30-40% of patient.
Upadrava (Complication) in Ayurveda is almost similar Clinical presentation as per describe under diabetic neuropathy.

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CORRESPONDING AUTHOR
Brijesh Kumar
Ph.D. Scholar
Department of Dravyaguna,
I.M.S, B.H.U,Varanasi, Uttar Pradesh, India
Email: brijesh.gupta015@gmail.com

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