REVIEW ARTICLE

An Ayurvedic Review on Diabetic Peripheral Neuropathy

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ABSTRACT:

Diabetes mellitus is a major health issue in today’s world. Main threat is not the disease itself but its complications like nephropathy, retinopathy and neuropathy etc. Diabetic peripheral neuropathy is one of the earliest complications which has the highest prevalence of about 40-50% and is becoming the leading cause of Hospital stay among diabetic mellitus and also the leading cause of foot ulcers, their complications like limb amputation and cost associated with it. Madhumeha which has been described as on the ‘Maharogas’ i.e. difficult to treat disease has many similarities with Diabetes mellitus and can be understood and studied as same disease. Ayurveda has mentioned the causes, pathophysiology and symptoms of Diabetic Peripheral Neuropathy as ‘karapada daha -suptata’ in purvarupa lakshanas and upadrava lakshanasa but inscattered form. Applying the Ayurveda principles in diagnosis and management of diabetes mellitus and its complications like DPN can considerably reduce the chance of foot ulcers and its consequences. But it needs depth study to understand the concept of DPN so as to form an effective management protocal.

Keywords: Madhumeha, Diabetes Mellitus, Diabetic peripheral neuropathy, karapada dahasuptata.

INTRODUCTION:

Madhumeha has been described as one of the ‘Maharogas’ i.e. difficult to treat disease by Ayurveda scholars.¹ Madhumeha is listed as “mahagadas” due to its severity and chronicity. It is one among 20 types of prameha. In Madhumeha patients pass honey like urine or sweetish urine and sweetness also present in the body of the patients.² It has been described under vataj prameha. Acharya Susruta has mentioned that Madhumeha is the consequence of untreated prameha.³ Acharya Charak has mentioned that due to excessive intake of guru, snigdha, amla,lawana, intake of new grains and alcohol, excessive sleep, prolonged sleep, prolonged sitting or lying down, lack of exercise or stress, not performing any samshodhana karma (body purifying procedures like vamana, virechana) are the causes of Madhumeha.⁴ This increased kapha, pitta, meda and mamsa obstructs the path of vata and causes its abnormality. This disturbed vata carries oja (the essence of body) into the mutrasaya (mutraavaha srotas) and results the disease madhumeha.⁵ Ayurvedic texts describes about the etiology, pathogenesis, prognosis, complications and its management and scientifically attributed to the causal relationship of dietary, lifestyle, environmental and genetic factors. Excessive urination (pravutumutrata) and turbid urine (avilmutrata) are the cardinal features of
Prameha and it holds true for Madhumeha also. Acharya Charak has mentioned the specific clinical features of Madhumeha as ‘passage of kasaya (stringent), madhura (sweet), pandu (pale) and rukshya (unooily) urine. Vagbhata in Astanga Hridaya has described the clinical features of Madhumeha as ‘madhusanam’ i.e. passage of honey like urine and ‘madhurachha tanorata’ i.e. sweetness in the body.

**Madhumeha and Diabetes Mellitus**

Almost all nidana of Madhumeha can be equated with the leading cause of Diabetes mellitus in today’s context i.e. change in dietary habit and sedentary lifestyle. Diabetes Mellitus is the condition in which there is increased blood glucose and glucose passes in the urine with polyuria at the same time. The clinical features of diabetes are thirst, dry mouth, polyuria, polyphagia, tiredness or fatigue, recent change in weight, blurring of vision, nausea, headache etc. These clinical features are similar to the clinical features of madhumeha presented in classical texts of Ayurveda so both madhumeha and diabetes mellitus can be understood as the same disease. In an article published in the journal of Complementary and Alternative Medicine, Banerjee et. Al. have used the term madhumeha and diabetes interchangeably and mentioned that the Ayurvedic biology concept about diabetes mellitus have its close relations with the present systems biology approach.

Diabetes mellitus (DM) is a chronic hyperglycemic condition due to metabolic derangements mainly attributed to absolute insulin deficiency or defect in insulin action. Diabetes is said to be a silent killer, because when pathology progresses there is generally no specific symptoms of disease itself and occurred symptoms like thirst, polyuria, polyphagia is usually ignored. Sometimes patients come to the outdoor of a Hospital or clinic with the complications of diabetes type 2 like neuropathy, blurred vision, foot ulcers, poor skin hygiene. DM poses significant morbidity and mortality if untreated because of its associated late complications in the form of micro and macro vascular structures. People with type-2 DM are at high risk of complications due to its insidious nature and late diagnosis, then type-1 DM. Neuropathy has been considered as important micro vascular complication of diabetes and sometimes reasoned as the pathological process for other abnormalities in DM.

DPN and understanding DPN in Ayurveda:

Diabetic Peripheral Neuropathy (DPN) is simply defined as “the presence of symptoms and / or signs of peripheral nerve dysfunction in people with diabetes after the exclusion of other causes”. Here nerve damage is caused by high blood sugar and uncontrolled diabetes. It leads to loss of sensation, burning sensation and numbness in the feet, legs and hands. When the nerve is damaged, they cannot effectively carry messages between the brain and the other parts of the body. Sometimes they are unaware of cuts or sore on the foot. The consequences can be life threatening and infection which won’t heal because of poor blood flow causes risk for developing ulcers can lead to amputation and even death. In the United States, diabetes is the leading cause of nontraumatic lower extremity amputation, renal failure and new blindness in adults. Diabetic Peripheral Neuropathy is a relatively early and common complications affecting 30% Diabetic patients. Although in a few patients DPN can cause severe disability, it is symptomless in the majority DPN is the most common complication of DM with a lifetime prevalence of about 50%. It is estimated that between 12 to 50% of people with diabetes have some degree of DPN and approximately 15% of people develop at least one foot ulcer during lifetime and 60-70% of ulcer are primarily neuropathic in origin. Study conducted in Dhulikhel Hospital, Kathmanda University Hospital Kavre Nepal in 160 clinically diagnosed diabetic patient, the overall prevalence of DPN was 38.1%. DPN occurs secondary to metabolic disturbance and prevalence is related to the duration of diabetes and the degree of metabolic control. The symptomatology corresponding to the clinical presentation of DPN is scattered in purvarupa, lakshanas and upadравra of prameha, madhumeha and vatavyaadhi. Clinical features like karapada daha (burning sensation in hands and feet), karapada suptata (numbness in hands and feet), anga suptata (numbness of body organs), angesu paridaha (Numbness in body organs), stambha (rigidity), kampa (tremor), shoola (pain) etc described under the purvarupa and upadравras of Madhumeha corresponds to Diabetic Neuropathy.

**MATERIAL AND METHODS**:

This review is done with an objective to know how in ayurveda the complications like DPN were mentioned so that we could reach the in-depth of the problem and also
brainstorm ourselves to find out its solutions hidden in the ocean of *ayurveda*. The madhumeha chapters in samhitas and other ayurveda texts, various online and offline peer-reviewed journals had been searched, reviewed, compiled and drawn a conclusion in brief for an evidence-based study. Samhitas like Charak samhita, Sushruta samhita, Astanga Hridaya etc which were edited and translated by different Ayurveda scholar, editors and writers were used for this review. In the same way website like Hinari, google scholar were used for the literature review purpose.

RESULT AND DISCUSSION:

In Ayurveda, direct nomenclature of DPN is not found. In Ayurveda classics symptoms like karapada suptata (numbness) and karapada daha (burning sensation) in body parts especially in hands and feet are described under purvarupa (premonitory symptoms) and upadrasas (complications) of Madhumeha. Daha (burning sensation), suptata (numbness), harsha (tingling sensation), shosha (wasting), dourbalya (weakness), angasada (lethargy) are the symptoms attributed as the upadrava (complication) of Madhumeha are almost similar to the description of Diabetic Peripheral Neuropathy. Karapada daha, karapada- suptata, paridaha suptata Angesu etc they indicate neurological complications of type 2 DM but sometimes as patient is unaware of the cause of these neurological symptoms and in some patient’s diabetes mellitus is asymptomatic, he later diagnosed as diabetes mellitus type 2 on proper examination and laboratory investigations. May be this is the reason these clinical features are mentioned in purvarupa and upadrava of Madhumeha instead of putting them only in upadravas. Hence whatever mentioned in premonitory symptoms of madhumeha are actually complications of madhumeha itself.

Causes, pathophysiology and symptoms

Careful analysis of studies done on the etiology, symptoms and complications of Madhumeha and Diabetes Mellitus by different scholars of both Ayurveda and Modern medical science was done. Analysis of all aspects of both disorders ‘Karapada daha- suptata’ and ‘Diabetic peripheral neuropathy’, many similarities are found in respect to etiology and symptomatology and a few modalities on treatment also. Main etiological factor causing DPN is uncontrolled glycaemic level and chronicity of Diabetes Mellitus. In Ayurveda also it is mentioned that when a person indulges in Madhumeha janya etiologies. Aahara janya nidana like consuming madhura, snigdha, guru aahara and Vihara janya etiologies like asya shukha - sedentary life style and sitting in comfort, divaswampa i.e. day time sleep etc causes the Madhumeha and further leads to Madhumeha janya dhatu kshaya. Dhatu kshaya aggravated vata and finally attains upadrava avastha and manifests as tingling sensation, burning sensation and pain in hands and legs. (karapada daha- suptata)

Symptomatic correlation between Karapada daha - suptata and DPN and dosha involvement

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Symptoms mentioned in Modern medical science</th>
<th>Symptoms mentioned in Ayurvedic texts</th>
<th>predominant dosha in symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>burning sensation in bilateral lower limbs specifically the foot</td>
<td>Pada daha</td>
<td>prakupita pitta</td>
</tr>
<tr>
<td>2</td>
<td>burning sensation in bilateral upper extremities including finger tips and palms.</td>
<td>kara daha</td>
<td>prakupita pitta</td>
</tr>
<tr>
<td>3</td>
<td>tingling sensation</td>
<td>cumcumayana</td>
<td>prakupita vata</td>
</tr>
<tr>
<td>4</td>
<td>numbness in hands and feet</td>
<td>karapada suptata</td>
<td>prakupita kapha and vata</td>
</tr>
<tr>
<td>5</td>
<td>pain</td>
<td>shoola</td>
<td>prakupita vata</td>
</tr>
</tbody>
</table>

From above correlation of nidana, lakshanas and samprapti of both ‘Karapada daha- suptata’ and DPN it can be concluded that *vata dosha* is the prime dosha involved followed by *pitta and kapha dosha*. Hence it is found that DPN mentioned under the complications of DM and Karapada daha- suptata mentioned under the heading of purvarupa (prodromal stage) and upadravas (complications) are very much similar. This can be summerised by above table. The symptoms such as Burning sensation (daha), tingling sensation (*cumcumayana*), prickling sensation (*shoola*) and numbness (*suptata*) are the main sensory symptoms seen in initial stages of Diabetic peripheral neuropathy. Hence these can be considered as important clinical features of DPN. Most presenting clinical features such as *daha* and
cumcumayana are attributed to prakupita pitta and vata dosha, shoolat (pricking sensation) is undoubtedly due to prakupita vata dosha and suptata (numbness) is due to combination of prakupita kapha and vata dosha. Some of late manifesting symptoms of DPN are dourbalya (weakness in extremities), mamsa soshas (wasting), kampa (tremor) are attributed to vata prakopas and due to diminution of dhatus.33

CONCLUSION:

Diabetic peripheral Neuropathy can be correlated and understood as ‘karapada daha - suptata’ mentioned as purva rupa lakshanam and upadrava lakshanam in scattered form in Madhumeha. Dhatukshaya janya awavastha of any disease occurs as its complications. So ‘Karapada daha - suptata’ is the complication of Madhumeha. Based on nidana (etiology) and their clinical manifestations these two conditions DPN and ‘Karapada daha - suptata’ are similar and can be interchangeably used for research and study purpose.

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ABBREVIATIONS: Not Applicable

CONFLICT OF INTEREST: Author declares that there is no conflict of interest.

REFERENCES:


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