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Concept of Diabetic Neuropathy and its management in Ayurveda

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ABSTRACT

Diabetes mellitus is a giant disease considered as one of the arch enemies of the mankind. The evidences at present suggest that incidence of Diabetes mellitus is raising among the general population. In Ayurveda, Diabetes mellitus closely resembles a disorder called *Madhumeha*, which is a subtype of *Vataja Prameha*. In *Avaranjanya Madhumeha* vitiated *Kapha*, *Pitta* and *Meda* causes *Avarana* to *Vata* that leads its aggravation causing diminution of vital *Dhatu*s. This may lead to the complication of *Madhumeha* such as Diabetic Neuropathy. According to Ayurvedic principles there is involvement of *Vata* and *Pitta Dosha* in diabetic neuropathy. The drugs used conventionally are mostly for relief in the symptoms and moreover they have certain side effects. Many single drugs and Ayurvedic formulations are used in practice have significant effect on the symptoms of numbness, tingling, burning sensation and pain in the patients of diabetic neuropathy.

Key words: *Diabetes Mellitus, Diabetic Neuropathy, Prameha Upadrava, Madhumeha.*

INTRODUCTION

Diabetic neuropathy is a type of nerve damage that can occur if you have diabetes. High blood sugar (glucose) can injure nerves throughout your body. Depending on the affected nerves, symptoms of diabetic neuropathy can range from pain and numbness in your legs and feet to problems with your digestive system, urinary tract, blood vessels and heart. Some people have mild symptoms. But for others, diabetic neuropathy can be quite painful and

disabling.^[1] Painful small fibre neuropathy can occur in both type 1 and type 2 diabetes, although there are far more cases in patients with type 2 diabetes because of the much higher prevalence of that type. Significant neuropathic pain occurs in 7.5% to 24% of all patients with diabetes.^[2] India is the diabetes capital of the world with a projected 109 million individuals with diabetes by 2035. Globally diabetic neuropathy affects approximately 132 million people as of 2010 (1.9% of the population).^[3] There is a higher prevalence (60.4%) and incidence (8.76%) of sensory peripheral neuropathy among the observed diabetic patients and it may go on increasing as the age progress.^[4] So this disease is becoming a global problem and it affects the daily life. According to Ayurvedic principles the symptoms like *Suptata* (numbness) and *Daha* (burning sensation) in body parts especially in hands and feet are described under *Purvarupa* of *Prameha*.^[5] *Daha* is also described among the *Upadrava* (complications) of *Prameha*.^[6] There is an involvement of *Vata* and *Pitta Dosha* (according to the symptoms) in diabetic polyneuropathy. Symptoms like numbness and

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tingling sensation are indicating involvement of *Vata*. Burning sensation is because of *Pitta*. Hence drugs having *Rasayana* and *Pramehahara* treatment along with *Vatapittahara* drug combination is useful in treatment of diabetic polyneuropathy.

OBJECTIVES

1. To study the literature regarding the diabetic neuropathy through modern medicine as well as Ayurveda point of view.
2. To study the Ayurvedic treatment modalities in of diabetic neuropathy.

Modern view

Symptoms^[7]: There are four main types of diabetic neuropathy. Symptoms will depend on the type you have and which nerves are affected. Usually, symptoms develop gradually.

Peripheral neuropathy

Peripheral neuropathy is the most common type of diabetic neuropathy. It affects the feet and legs first, followed by the hands and arms. Signs and symptoms of peripheral neuropathy are often worse at night, and may include:

- Numbness or reduced ability to feel pain or temperature changes
- Tingling or burning sensation
- Sharp pains or cramps
- Increased sensitivity to touch - for some people, even the weight of a bedsheet can be painful
- Muscle weakness
- Loss of reflexes, especially in the ankle
- Loss of balance and coordination

Autonomic neuropathy

The autonomic nervous system controls your heart, bladder, stomach, intestines, sex organs and eyes. Diabetes can distress nerves in any of these areas, possibly causing:

- Bladder problems, including urinary tract infections or urinary retention or incontinence

- Constipation, uncontrolled diarrhoea or both, Slow stomach emptying (gastroparesis), causing nausea, vomiting, bloating and loss of appetite, Difficulty swallowing
- Increased or decreased perspiring , Difficulties controlling body temperature
- Increased heart rate at rest
- Decreased sexual response

Radiculoplexus neuropathy (diabetic amyotrophy)

Radiculoplexus neuropathy affects nerves in the thighs, hips, buttocks or legs. It's more common in people with type 2 diabetes and older adults.

- Severe pain in a hip and thigh or buttock that occurs in a day or more
- Eventual weak and shrinking thigh muscles
- Difficulty rising from a sitting position
- Abdominal swelling, if the abdomen is affected
- Weight loss

Mononeuropathy

Mononeuropathy, or focal neuropathy, is damage to a specific nerve in the face, middle of the body (torso) or leg. It's most common in older adults. Pain in the:

- Shin or foot
- Lower back or pelvis
- Front of thigh
- Chest or abdomen

Investigation of Diabetic neuropathy^[8]

Neuropathy is diagnosed on the basis of symptoms and a physical examination. During the examination, the doctor may check blood pressure and heart rate, muscle strength, reflexes and sensitivity to position, vibration, temperature or a light touch. The doctor may also do other tests to help determine the type and extent of nerve damage.

1. Comprehensive Foot Exam
2. Electromyography (EMG)

3. Quantitative Sensory Testing (QST)
4. A check of Heart Rate Variability
5. Ultrasound
6. Nerve Conduction Study

Ayurvedic view

The disease diabetic neuropathy cannot be directly correlated with any *Vyadhi* of Ayurveda. But similar *Lakshana* are present in *Purvaroop*a and complication of *Prameha*. In diabetic neuropathy, mainly lancinating pain, burning sensation, tingling sensation and numbness in hands and feet are the symptoms. Symptoms of diabetic neuropathy include;

1. **Ruja:** The word pain signifies 'Ruk'. Any kind of pain is always associated with *Vayu*.^[9] It is included under *Vataprakopaka Lakshanas* by *Astanga Hridaya*, the word pain signifies 'Ruk'. Any kind of pain is always associated with *Vayu*. It is included under *Vataprakopaka Lakshanas* by *Astanga Hridaya*.
2. **Daha:** The word burning means *Daha*. *Daha* is felling like burn from fire. Any type of *Daha* always associated with *Pitta* but here *Padadaha* is due to *Ashyapakarsha* of *Pitta* by *Vata*.
3. **Harsha:** *Harsha* is included in *Vata Nanatmaja Roga*.^[10] *Jhanjhanaya* or *Chimchimayan* means tingling or clanking. Here *Chala Guna* of *Vata* is responsible for *Harsha*. *Jhanjhanaya* also described in *Vatavyadhi Cikitsa in Chakardatta*.
4. **Supti:** *Supti* means numbness. *Supti* is a symptom of *Snayu Sira Kaṇḍra Dushti*.^[11] *Supti* is described in *Vata Nanatmaja Roga*.

In Ayurvedic classics symptoms like *Suptata* (numbness) and *Daha* (burning sensation) in body parts especially in hands and feet are described as *Purvarupa* of *Prameha*.^[12]

These symptoms are present in complication of *Prameha*.

Table 1: Complication due to Vataja Prameha^[13]

SN	Ayurveda	Modern
1.	<i>Udavarta</i>	Reverse movement of <i>Vata</i>
2.	<i>Kampa</i>	Tremors or vibration sensation in the body
3.	<i>Hridagraha</i>	Catching pain in the region of precardium (heart)
4.	<i>Lolatah</i>	Different types of desires
5.	<i>Shoola</i>	Pain in the abdomen and whole body
6.	<i>Anidra</i>	Muscular atrophy
7.	<i>Kasa, Swasa</i>	Cough, Dyspnoea

Table 2: Complication due to Pittaja Prameha

SN	Ayurveda	Modern
1.	<i>Bastitoda</i>	Pricking pain in the bladder
2.	<i>Mehantoda</i>	Pricking pain in the testes
3.	<i>Muskavadaranam</i>	<i>Muskavadaranam</i>
4.	<i>Jwara</i>	Fever
5.	<i>Daha</i>	Burning sensation in the body
6.	<i>Trishna</i>	Thirst
7.	<i>Amlika</i>	Sourness

Table 3: Complication due to Kaphaja Prameha^[14]

SN	Ayurveda	Modern
1.	<i>Avipaka</i>	Poor digestion
2.	<i>Aruchi</i>	Anorexia
3.	<i>Chhardi</i>	Vomiting
4.	<i>Mamsapacaya</i>	Muscular hypertrophy

5.	<i>Shaithilya</i>	Lethargy
6.	<i>Makschikopasarpan</i>	Sitting of the flies over body.

DISCUSSION

Diabetes neuropathy is having *Tridosha Dushti* along with *Agnimandya* and *Amotpatti* which further cause *Dushti* of *Rasa* and *Majja Dhatu* because of same qualities. Excessive intake of *Amla, Lavana, Katu, Ushna, Tikсна Ahara* causes *Pitta Prakopa, Raktadushti* and *Shitilatha* of *Dhatu*s. In *Vataja Prameha* this vitiated *Vayu* starts spreading in various parts of body and produces the features of Diabetic Neuropathy. Since vitiated *Vata* goes to *Tvacha*, Vitiated *Vata* produces features like tingling, twitching, pricking or incising pain in skin, dryness of skin, abnormal pigmentation, numbness etc., Vitiated *Vata* is also responsible for *Parishoshana* (decrease) of *Tarpaka Kapha* which further leads to decrease of *Snayugata Kapha* (*Sneha*). We know that *Tarpaka Kapha*^[15] provides nutrition (*Tarpana*) of *Indriyas*. So due to decrease in *Tarpaka Kapha* the nutrition of *Indriyas* (sensory and motor organs) are decreased. This leads to decrease in the functions of *Indriyas* (both *Karmendriyas* and *Gyanendriyas*). Due to vitiation of *Pitta* goes to *Twacha* and produce burning sensation, warmth of skin, faintness, giddiness etc. Ultimately from *Tvacha*, these two *Doshas* further spread and affect the *Snayus* (nerves). As a result, *Snayusotha* occurs which is manifested as Mono-Neuropathy, Mono-Neuropathy multiplex and Poly-Neuropathy etc. Diabetic Neuropathy as a *Tridoshaja Vyadhi* in which *Vata Prakopa* is the chief factor which occurs due to *Dhatukshaya, Ojokshaya* and *Ruksha Ahara-Vihara* and which results ultimately in *Madhumehajanya Snayusotha* and produces entire features of Diabetic Neuropathy.

Management

Nidana Parivarjana is the main *Chikitsa* of every disease, *Shamsodhana, Shamshamana*. All Ayurvedic *Acharyas* explained about *Nidana Parivarjana* as *Kaphavardhaka Ahara Vihara* should be avoided i.e. *Madhura, Sheeta, Snigha, Guru Ahara* etc. Activities

like lack of exercise, laziness and sedentary habits must be avoided.^[16] In *Panchakarma* purification of the body leads to maintaining their equilibrium. Initially *Snehana* is done followed by the *Swedana*. Then *Samshodhana* is done by *Vamana, Virechana*.^[17] *Nasya, Basti, Shastika Pinda Sweda, Patrapinda Sweda* is useful in treatment of diabetes neuropathy. Ayurvedic antidiabetic formulation along with *Tridosha Shamaka* herbs specially *Vatashamaka Shothahara* property due to its diuretic nature, *Nadibalya* (Nervine), *Vedana Sthapaka* useful in the state of Diabetic Neuropathy. *Bala, Atibala, Ashwagandha, Tila Taila* has emollient, nourishing property and may act by its myelin sheath repair property and nourishes the *Snayu* and improves its actions. All these drugs have the property of *Vatanashaka* and may improves the myelin sheath repair property and the nerve conduction velocity which as a result in overall improvement in the total health especially Neurological health of patients of Diabetic Neuropathy.

CONCLUSION

Diabetic neuropathy is damage to autonomic, motor and / or sensory nerves that results from metabolic or vascular derangements in patients with long standing diabetes mellitus. The disease diabetic neuropathy cannot be directly correlated with any *Vyadhi* of Ayurveda. Symptoms of the disease like pain (*Ruka*), tingling sensation (*Harsha*) and numbness (*Supti*) are due to vitiation of *Vata Dosh*a. Burning (*Daha*) sensation is due to provocation of *Pitta Dosh*a. Drugs having *Rasayana, Madhumehahara* property and *Balya* property is useful in the treatment of diabetic neuropathy.

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