

**AN AYURVEDIC STANCE ON DIABETIC PERIPHERAL  
NEUROPATHY (DPN)****D. Shyam Sundar<sup>1\*</sup>, Sudarsan Behera<sup>2</sup>, Snehamayee Mishra<sup>3</sup> and Sonalika Jena<sup>4</sup>**

<sup>1</sup>M.D. Scholar, P.G. Department of Kaya Chikitsa Gopabandhu Ayurveda Mahavidyalaya  
and Hospital, Puri, Odisha, India.

<sup>2</sup>M.D. (Ay), Ph.D. (U.U.) Professor, P.G. Department of Kaya Chikitsa, Principal,  
Government Ayurvedic College and Hospital, Balangir, Odisha.

<sup>3</sup>M.D. (Ay), Ph.D. (U.U.) Professor, HOD, P.G. Department of Kaya Chikitsa National  
College of Ayurveda and Hospital, Barwala, Hisar, Haryana.

<sup>4</sup>M.D. (Ay), Ph.D. (U.U.) Reader, P.G. Department of Kaya Chikitsa, Gopabandhu Ayurveda  
Mahavidyalaya and Hospital, Puri, Odisha.

Article Received on  
09 October 2023,

Revised on 29 October 2023,  
Accepted on 19 Nov. 2023

DOI: 10.20959/wjpr202321-30328



**\*Corresponding Author**

**Dr. D. Shyam Sundar**

M.D. Scholar, P.G.  
Department of Kaya  
Chikitsa Gopabandhu  
Ayurveda Mahavidyalaya  
and Hospital, Puri, Odisha,  
India.

**ABSTRACT**

Diabetic Peripheral Neuropathy (DPN) is one among the microvascular complications of the chronic Diabetes mellitus. This state of illness is due to the prolong hyperglycemic condition resultant to the alteration in the micro-vasculature supplying to the peripheral nerves of a diabetic individual. Approximately 50% of the total diabetic population are suffering from this kind of neuropathy. The incidence of Peripheral neuropathy is strongly correlated with microvascular changes and comorbidities. In Ayurveda, there is no direct reference for diagnosing Diabetic Peripheral Neuropathy, so it is essential to understand the causative factors and associated sign symptoms based on Tridoshas in Pradhana vyadhi as well as in Upadrava. Madhumeha is sub a type of vataja Prameha and also described as one of the Astamahagada in Ayurvedic classics. Prameha lead to become Madhumeha if not diagnosed or managed properly in time as in their earlier stages. The aggravation & vitiation of the vata doshas

responsible as the prime causative factor in both the types of madhumeha viz. Dhatukshaya janya and avarana janya. The clinical features like kara padayo suptata daha (numbness and burning

sensation in the hands & feet), dourbalya (weakness) can be directly co-related with DPN; since it manifests as a super added condition upadrava to the already existing Pradhana vyadhi. Hence in this study the basic ayurvedic and contemporary texts relevant to DPN are looked up regarding its management. The primary goal is alleviation of the vata dosha to soothe the nerves, promotion of the rasayana effect inside the body, diminution of the margavarodha and further dhatukshaya & vata prokopa, correction of the agni and also enrichment of the oja. The dietary & behavioral regimens advised in the ayurvedic classical texts are highly impacting in the management of DPN.

**KEYWORDS:** DPN, DM, Prameha, Madhumeha, Upadrava, Vata.

## INTRODUCTION

DPN (Diabetic Peripheral Neuropathy) is a hazardous microvascular complication following the prolong hyperglycemic state in Diabetes mellitus affecting the quality of life of an individual. The metabolic disorder Diabetes mellitus (DM) evolves in several complications including macrovascular and microvascular alterations. Neuropathy, Nephropathy, Retinopathy are regarded as Microvascular complications. Neuropathy is a nerve damage condition along with structural & functional impairment outside the brain and spinal cord. Peripheral neuropathy manifests as the damage to the peripheral sensory, motor & also autonomic nervous system leading to disabling consequences if it is left untreated.

In Ayurvedic classics there is no accurate nomenclature to suggest Diabetic peripheral neuropathy. Diabetic peripheral neuropathy can be compared under the broad head of *Prameha janya upadrava* as it manifests secondary to DM. The symptomatology corresponding to the clinical presentation of DPN is scattered in *Purvarupa* (premonitory symptoms), *Lakshana* (symptoms) and *Upadrava* (complications) of *Prameha* and *Vatavyadhi*. In Ayurveda, Prameha is one of Ashtamahagada, which will finally transform into Madhumeha without proper management. As there is no direct reference for diagnosing DPN in Ayurveda, it is essential to understand the causation and association of symptoms based on Tridoshas in *Pradhana Vyadhi* (main disease) as well as in upadrava (complications). After analyzing both madhumeha and DPN many similarities were found in respect of Nidana (etiology), Samprapti (pathology), and Lakshana (symptoms). Continuing nidana sevana even after Prameha Samprapti leads to its Upadrava.

The features such as *Kara pada daha* (burning sensation of hand and foot), *Pipeelika sancharamiva* (tingling sensation), *Swapa/Supthi* (numbness), *Sosha* (wasting), *Angasada* (weakness) are seen in Prameha either in the prodromal stage or in actual exhibition stage or complication stage can be correlated as DPN. The Prevalence of DPN is strongly associated with the duration of diadetes and glycemic control.

### Significance of Prameha and Madhumeha

*Prameha* is described among the *Ashtavidha Maharogas* in different ayurvedic texts. The common symptoms for all varieties of Prameha are *Prabhuta mutrata* and *Avila mutrata*. This Lakshana along with partial or complete Purvarupa lakshanas make the diagnosis of Prameha. The most prevalent variety of Prameha is Madhumeha. It is one of the subtypes of Vataja Prameha. The term Madhumeha denotes excessive flow of sweet urine resembling honey in rasa or varna. If all other Pramehas are left untreated will finally transform into Madhumeha. Chornicity and poor glycemic control influence the transformation of Madhumeha which is similar to the etiology of DPN. The exact interpretation of symptoms of DPN is not found in the samhitas. But there are few scattered references for the upadrava vyadhies of Madhumeha which bear a close resemblance to the signs and symptoms of Diabetic Neuropathy. The features such as *Kara pada daha* (burning sensation of hand and foot), *Pipeelika sancharamiva* (tingling sensation), *Swapa/Supthi* (numbness), *Sosha* (wasting), *Angasada* (weakness) are seen in Prameha either in the prodromal stage or in actual exhibition stage or complication stage can be correlated to the symptoms of Diabetic Peripheral Neuropathy.

### Ayurvedic view

The disease Diabetic peripheral neuropathy can not be directly correlated with any vyadhi of Ayurveda. But similar Lakshana are present in purvarupa 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 peripheral neuropathy include

- ❖ **Ruja:** The word Ruja or ruk signifies any kind of pain is always associated with Vayu. It is included under Vata prakopaka lakshanas by Astanga Hridaya.
- ❖ **Daha:** Daha means feeling burning sensation. Any type of Daha always associated with Pitta, here Padadaha is due to Ashyapakarsha of Pitta by Vata.

- ❖ **Harsha:** Harsha is included in Vata Nanatmaja Roga. Here, Chala guna of Vata is responsible for Harsha.
- ❖ **Supti:** Supti means numbness. Supti is a symptom of Snayu Sira Kandara Dushti. Supti is described in Vatavyadhi chikitsa in Chakradatta.

### **Samprapti ghataka of diabetic peripheral neuropathy**

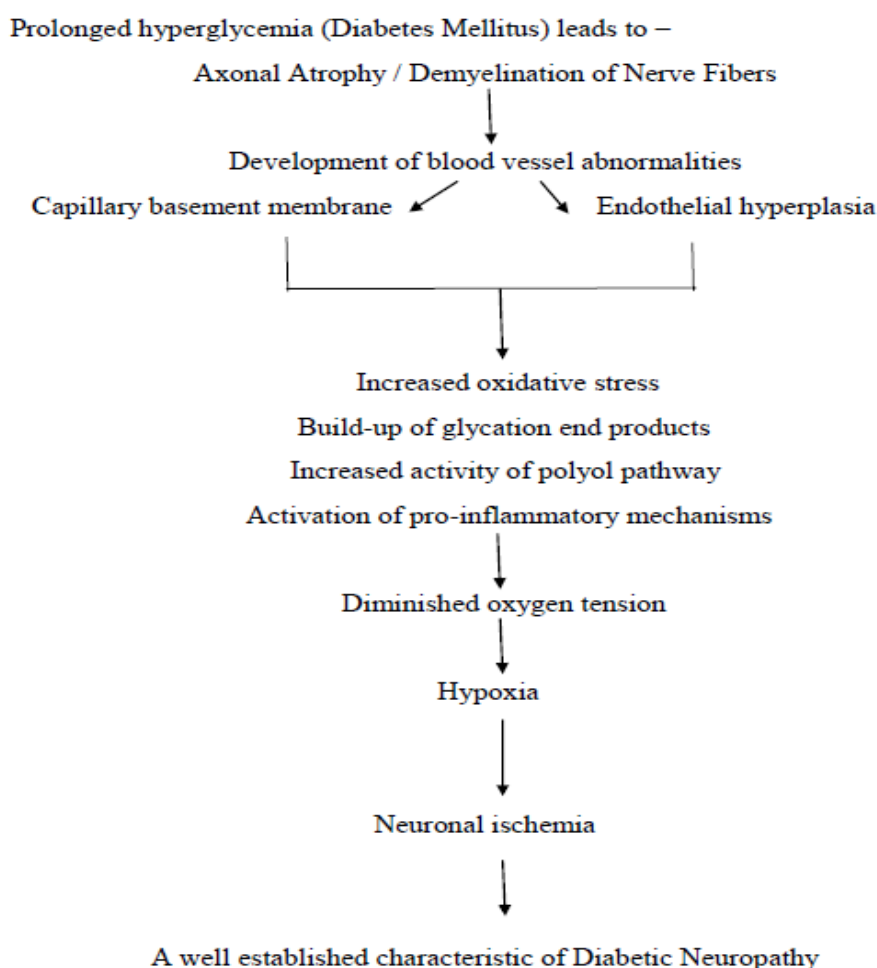
- Doshas – Tridosha Vata pradhana
- Dushyas – Rakta, Twak, Mamsa, Meda, Vasa, Rasa, Ambu, Lasika, Majja, Shukra, Ojas
- Upadhatu – twak, sira, kandara, snayu
- Agni – Dhatwagni Mandhyata
- Srotas – Annavaha, Udakavaha, Rasavaha, Raktavaha, Medavaha, Mamsavaha, Majjavaha, Shukravaha, Swedavaha, Mutravaha, Purishavaha, Samjnavaha srotas
- Srotodusti – Sanga and Vimarga gamana
- Udbhava Sthana – Amapakwasaya
- Sanchara Sthana – Rasayani (Sira, Dhamani)
- Adhisthana – Raktavaha(mainly), Medovaha srotas including vapavahana
- Vyakta Sthana – Sakha especially Adhasakha
- Vyadhi swarupa – Chirakari

### **Modern view of diabetic peripheral neuropathy**

Peripheral neuropathy can affect up to 50% of individuals with diabetes. The aetiology has been linked to prolonged raised blood glucose levels and compromised blood supply in diabetes. Initially, the Peripheral nerves are involved with the first sign of nerve damage occurring in the feet. If left untreated, it can affect other body parts.

A person with neuropathy can have symptoms such as numbness or tingling at one end of the spectrum or painful symptoms at the other end of the spectrum. Loss of sensation in the foot can increase the risk of foot injury. Neuropathic pain can be mild or severe but can worsen specially at night. It can also cause unsteadiness while walking and can interfere with daily activities. Symptoms can also include poor bladder control, bowel movement or impaired movement of one or more toes.

## Pathophysiology of diabetic neuropathy



**Diabetic Peripheral Neuropathy (DPN)** - This is distal symmetric peripheral neuropathy. It's the most common type. 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
- Serious foot problems, such as ulcers, infections, and bone and joint pain.

## Analysis of symptoms of diabetic peripheral neuropathy

Predominantly sensory or sensorimotor distal polyneuropathy is the most common of the diabetic neuropathies and it constitutes three-fourths of all diabetic neuropathy cases. Distal portions of longer nerves are affected first, the lower legs and the feet are involved before the hands, producing the typical “glove and stocking pattern” of sensory deficit. Large fiber

variant have features of painless paresthesias beginning at the toe and feet, impairment of vibration, joint position sense and diminished muscle stretch reflexes. Patients with disproportionate large fiber involvement may manifest muscle weakness, atrophy of intrinsic foot muscles, and weakness of extensors and flexors of the toes and ankles with foot drop. Small fiber variant presents with the dissociated pattern of pain (deep, burning, stinging, an aching character often associated with spontaneous shooting pains) and allodynia to light touch and temperature deficit with preserved vibration and position sense, preserved tendon reflexes and strength, painless foot ulcers and neuropathic joint degeneration. The various symptoms related to *Madhumeha* mentioned in Ayurvedic classics are concordant with sensory, motor and autonomic symptoms of diabetic neuropathy analyzed as follows.

### Sensory Symptoms of Neuropathy

Sl. No.	Symptoms	Lakshana	References
1	Numbness	<i>Swapa/Supti</i>	<i>Raktavrita vata</i> <i>Prameha purvarupa</i>
2	Burning sensation	<i>Daha</i>	<i>Raktavrita vata, Prameha purvarupa, Prameha upadrava</i>
3	Pricking sensation	<i>Suchibhirivanistoda</i>	<i>Asthyavita vata, Raktavrita vata</i>
4	Heaviness of limbs	<i>Guruta</i>	<i>Kaphavrita vata, vatarakta</i>
5	Tingling sensation	<i>Pipeelika sanchramiva</i>	<i>Mamsavrita vata</i>
6	Abnormal pain perceptions	<i>Toda, Shula, Sparshavaigunya, twak sosham</i>	<i>Swedakshaya, Prameha upadrava, Pittavrita vata</i>

### Motor symptoms of neuropathy

#### Symptoms

- Wasting – *Mamsopachaya Sosha*(Prameha upadrava)
- Weakness – *Dourbalya, Angasada* (Prameha upadrava)
- Involuntary movements – *Kampa* (Prameha upadrava)

### Autonomic symptoms of neuropathy

#### Symptoms

- Constipation – *Badhapurisha* (Prameha upadrava)
- Indigestion – *Avipaka* (Prameha upadrava)
- Diarrhoea – *Atisara* (Prameha upadrava)
- Thirst – *Pipasa* (Prameha upadrava)
- Anorexia - *Arochaka* (Prameha upadrava)

- Impotency – *Klaibya* (Prameha upadrava)
- Fainting – *Moorcha* (Prameha upadrava)

### **Ayurvedic management of diabetic peripheral neuropathy**

- Nidana Parivarjana is the main treatment principle of every disease, Shamsodhana, Shamshamana. All Ayurvedic Acharyas explained about Nidana Parivarjana, as Kapha vardhaka Ahara vihara should be avoided i.e., Madhura, Sheeta, Snigdha, Guru Ahara etc. activities like lack of exercise, laziness and sedentary habits must be avoided.
- Neuropathy is a condition where there is a gross impairment of functions and structures of a dhatu which involve bahu dosha Avastha. In such conditions, first the Agni should be corrected then the prakupita dosha Avastha should be corrected.
- Since dhatus have a passive role in samprapti, when the dosha dushti shamana occurs, dhatu dushti will be corrected.
- In diabetic peripheral neuropathy, when symptoms such as burning sensation are present, treatment for pittavruta vata should be given.
- When symptoms such as numbness is present, kaphavruta vata treatment should be given.
- Ayurvedic antidiabetic formulation along with Tridosha Shamaka herbs specially Vatashamaka, Shothahara property due to its diuretic nature, Nadibalya (nervine tonic), Vedana Sthapaka useful in the state of Diabetic Neuropathy.

### **Basti**

Basti can break pathogenesis of Vatavyadhi by removing Margavarodha by purification of channels and Dhatukshaya by its Brimhana property. Basti used in the case mainly made of Tikta Rasa and Madhura Rasa. Mahapanchatikta Ghrita and Ashwagandha Taila were used in the formation of Basti. Tikta Rasa is used in the treatment of Rakta Dosha and Raktavaha Srotodusti. Tikta Rasa has Shothaghna and Pittahara properties. Ghrita and Madhu have Madhura Rasa dominance. The combination of these drugs may act as Vata Pittahara that may reduce inflammation and treat the Diabetic neuropathy condition.

### **Udvartana**

In the pathogenesis of Prameha, it is mentioned that due to the Bahu Drava Shleshma, the Sthirata (compactness) of the muscles of the body is lost. As Udvartana is a procedure that decreases Kapha liquefaction of Medas imparts Sthirata to the body and helps in Twak Prasadana, which was preferred. In this case, Udvartana is aimed at providing the initial



Langhana and sensitization of the skin by increasing the circulation. Triphala churna, Triphala & Yashtimadhu churna, Kolkulathadi churna, Nisha Amalaki churna can be used.

### **Abhyanga**

After the initial Rookshana by Udvartana, Abhyanga should be done with taila which is Vatahara and also indicated in Prameha. This process alleviates Vata and improves the sensory perception of the skin as Vayu dominates the tactile sensory organ located in the skin.

### **Ayurvedic formulations in diabetic peripheral neuropathy**

- **Ashtavarga kashaya**
- **Bala guduchyadi kashaya**
- **Shunthibaladi kashaya**
- **Guduchyadi kashaya**
- **Dhanwantaram kashaya**
- **Vidaryadi kashaya**
- **Guduchi satva**
- **Vasanta kusumakar rasa**
- **Shiva gulika**
- **Shilajatwadi lauha**
- **Pravala pishti**
- **Mukta bhasma**
- **Rasnadyam churnam**

### **DISCUSSION**

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. Symptoms of the disease like pain (Ruja), tingling sensation (Harsha) and numbness (Supti) are due to vitiation of Vata Dosha. Burning sensation is due to provocation of Pitta Dosha. Drugs having Rasayana, Madhume hara property and Balya property is useful in the treatment of diabetic neuropathy. The combined Ayurvedic treatment protocol of oral drugs and external therapies were found to be effective in the management of sensory as well as motor symptoms of Diabetic Peripheral Neuropathy.



Long term use of Ayurvedic treatments and internal medications can be effective in the treatment of DPN; further use of suitable Rasayana drugs may arrest the disease progression also. The most common form of diabetic neuropathy is distal sensory polyneuropathy has similar symptoms of the Avarana type while majority cases of motor involvement shows the features of the Dhatukshaya type. Treatment of each type differs as Srotoshodhana is needed for Avarana while Dhatukshaya requires Brumhanam. Symptoms of DPN can be relieved by strict glycemic control and proper treatment in the initial stage.

## CONCLUSION

DPN can't be confined to accurately nomenclated disease in ayurveda classics, but considering its etio-pathology, sign & symptoms and its co-relevance in ayurvedic aspect; it can be concluded with its essential management as firstly its Nidana Parivarjana then Samprapti Vighatana of the disease; along with appropriate Pathyapathya palana. Dhatu samyata should be maintained according to the dosha dushya vivechana, nature of avarana. Vata shamana accompanying rasayana can be a proper addressing management to improve the quality of life as well as to prevent the further progression towards additional complications.

## BIBLIOGRAPHY

1. Agnivesa, Charaka, Chakrapani. Charaka samhitha, Indriyasthana Vaidya Jadavji Trikamji Acharya, Narayana Ram Acharya. Edition Reprint. Varanasi; Chaukhambha Sanskrit Sansthan, 2015; 9, 7: 4/15, 47, 48, 20/11, 28/21, 28/17, 61, 63, 66, 67, 203, 226.
2. Susrutha, Dalhana, Gayadasa. Susrutha samhitha, Sutrasthana Vaidya Jadavji Trikamji Acharya. Edition Reprint. Varanasi; Chaukhambha publications, 2014; 33, 4: 1/25, 32-36, 47, 6/13, 15, 6/21, 6/25, 6/27, 34, 35.
3. Vagbhata, Arunadatta, Hemadri. Ashtanga Hridaya, Sutrasthana Bhishagaacharya Pandit Hari Sadashiva Shastri Paradakara. Edition Reprint. Varanasi; Chaukhambha Sanskrit Sansthan, 2016; 12, 11: 12/62, 6/13, 6/31, 10/18-19, 10/23-24, 16/34.
4. Tripathy Bramhananda, Madhav Nidan, Chaukhmba Subharati Prakashan, Madhav Nidan, 2013; 33.
5. Basavaraja. Basavarajiyam, Meha roganidanam Gajendra Pandey. Varanasi; Choukhamba Krishnadas Academy, 2010; 9.
6. Arnold Gries, Norman E. Cameron, Phillip A. Low, Dan Ziegler, Text book of Diabetic Neuropathy Fauci et al. Harrison's Principles of Internal medicine. McGraw Hill

- Publication; Mohan Harsh Text book of Pathology Jaypee Brothers Medical publishers (P) Ltd, 2013; 18, 2: 344 – 7.
7. Walker Brian R., Colledge Nicki R., Ralston Stuart H., Penman Ian D., Davidson's Principles & Practice of, 2017; 23.
  8. Munjal YP, API Text book of Medicine, 2012; 9.
  9. Dorland, W A Newman. Dorland's Illustrated Medical Dictionary. Philadelphia: Elsevier Saunders, 2012; 32.
  10. Ronald Kahn, Gordon C. Weir. Joslin's Diabetes Mellitus. Reprinted; Williams and Walkins, The nervous system and diabetes, 2000; 43: 13.
  11. Walter G. Bradley et al. Neurology in Clinical Practice. Butterworth Heinemann Elsevier Disorders of Peripheral Nerves, 2008; 2: 5.