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Effect Of *Mustadi Yapana Basti* on Diabetic Neuropathy - A Review Article

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Abstract

Background : One of the microvascular complications of DM-2 is diabetic neuropathy (DN), which impairs quality of life of an individual and for which there is not known satisfactory cure until now. The Ayurvedic condition known as *Madhumeha*, a form of *Vataja Prameha*, is quite similar to Diabetes Neuropathy. *Avarana* is caused by vitiated *Kapha*, *Pitta*, *Rakta*, and *Meda* in *Avaranjanya Madhumeha*, which aggravates *Vata* and hampers the nourishment of *Dhatu*. It can be correlated with a '*Shonita Avrutta Vata*' as a complication of *Madhumeha* according to Ayurveda for treatment purpose. **AIM and Objective:** To review literature related to Diabetic Neuropathy and effect of *Mustadi Yapana Basti* on it and integrative approach in terms of pathophysiology, management, prevention according to Ayurveda **Methods:** This study is undertaken by reviewing various classical literature and databases like PUBMED, NCBI, google scholar, Scopus, Ayush portal etc., and qualitative review are synthesized to complete this work. **Result :** Ayurved has specific *Shodhana* procedure out of which *Basti* is believed to facilitate to maintain metabolism. Charak had depicted *Basti* as an *Aardhachikitsa* and main *Chikitsa* for *Vata Dosha*. *Mustadi Yapana Basti* helps to remove *Avarana* and improves the quality of *Dhatu* by its *Rasayana* and *Balya* property. **Conclusion:** Hence, it can be concluded that *Basti* is effective treatment in Diabetic neuropathy w.s.r. to *Madhumehajanya Shonita Avrutta Vata* by eliminating the *Avarana* of *Vata*. *Mustadi Yapana basti* acts as *Shodhana* as well as it gives strength to the patient. The drugs used in the *Mustadi Yapana Basti* might be able to break the pathophysiology of DN.

Key words- *Avarana*, Diabetic Neuropathy(DN), *Madhumehajanya Shonita Avrutta Vata*, *Mustadi Yapana basti*, *Rasayana*.

Introduction

Diabetes mellitus is a costly disease that impacts individuals worldwide, as well as economies, healthcare systems, and entire societies, and it is becoming an epidemic globally. Uncontrolled chronic hyperglycemia can lead to damaging effects on organs such as the heart, kidneys, eyes, and nerves, resulting in vascular complications. ^[1] Diabetic Neuropathy(DN) is characterized by degenerative neuronal loss caused by alterations in nerve damage and repair processes, leading to progressive loss of sensation. The prevalence of DN in India varies widely, ranging from 9.6% to 78% in different populations. ^[2] It is a distinct neurodegenerative condition affecting the peripheral nervous system, primarily impacting sensory axons, autonomic axons, and to a lesser degree, motor axons. ^[3]

Elevated glucose levels in the bloodstream result in insulin resistance, dyslipidemia, and oxidative stress in the endoplasmic reticulum and mitochondria. These processes lead to accumulating reactive oxygen species (ROS), inflammation, and cellular damage. Macrophages that infiltrate peripheral nerve cells stimulate the production of cytokines and chemokines, which in turn promote inflammation and damage to nerve fibers. ^[4]

DN is often linked with damage to small blood vessels. There is a decrease in peripheral perfusion not only in the nervous tissue but also in the skin, which is a significant physiological indication of microvasculature changes. This leads to nerve ischemia due to an increase in the thickness of vessel walls and the hyalinization of the basal lamina of the nerves' blood vessels and a reduction in the vessel lumen. ^[5]

Madhumeha was described by Sushrut as *Updrava* of *Prameha*. ^[6] *Dhatu Kshayajanya* and *Dosha Avruttajanya* are the two ways that *Madhumeha* manifests. ^[7] The features of *Shonita Avrutta Vata* are *Suchibhiriv Nistoda* (Pricking pain), *Sparshadwesh* (Hyperesthesia), *Suptata* (Numbness), *Daha* (burning sensation) which resembles the cardinal feature of DN. ^[8] Symptoms like *Padasupti*, *Padaharsha* are described under *Vataja Nanatmaja Vikaras*. The signs and symptoms of DN scattered in *Purvaroop* and *Updrava* of *Prameha*. Since the etiology, pathophysiology, and symptoms of DN are more comparable to those of "*Madhumehajanya Shonita Avrutta Vata*," they may be related.

By using the GIT's enteric nervous system, *Basti* can restore neural axis dysfunction by removing metabolic waste and removing the *Avarana* of *Vata*. This restores regular *Dosha* functioning, which prevents the body's essential *Dhatu* (elements) from being depleted through urine. ^[9]

The pathophysiology of DN is still poorly understood, and the pain relief it offers is still minimal, making treatment challenging. An effective medication for DN is not presently available.^[10] Among the medications used to treat painful diabetic neuropathy include tricyclic antidepressants, opioids, anticonvulsants, and topical capsaicin; the US FDA has approved duloxetine and pregabalin.^[11] Although these regimens work, most of them are costly and have side effects. It is crucial to find alternative drugs to enhance the quality of life and counteract the shortcomings of contemporary medicine.

When the meanings of *Gati* and *Gandhana* are combined, it becomes evident that a balanced *Vata* governs all bodily processes, including the full range of sensory and motor capabilities, an individual's physical and mental capacities, and reactions to stimuli. All of them are also the combined actions and functions of different nervous system components. The neurological system's functions are suggested by balanced and imbalanced *Vata*, respectively, as well as by diseased manifestations. *Basti* is the first line of treatment for vitiated *Vata* and is also beneficial in the imbalance of *Pitta* and *Kapha*.

Aims and Objectives

□ To find out the possible mode of action of *Muastadi Yapana Basti* on diabetic neuropathy w.s.r.to *Madhumehajanya Shonita Avrutta Vata* . To evaluate the integrative approach of Basti treatment in terms of the breakdown of the pathophysiology, management and prevention according to Ayurved and modern aspects.

Material and Methods

- Information for the present analysis is compiled from classical texts of Ayurveda with commentary.
- Variety of scientific search databases including Google Scholar, NCBI, Pub Med, Web of Science and Science Direct by using keywords like *Mustadi Yapana Basti*, *Basti*, *Prameha*, diabetic neuropathy, oxidative stress etc. Articles studied in detail after screening for relevancy to synthesize qualitative review.

Observation and Result:

1. Probable Pathophysiology of *Madhumehajanya Shonita Avrutta Vata* in correlation with Diabetic Neuropathy

Samprapti Ghataka of Diabetes Neuropathy

Dosha - *Vata* (dominantly), *Kapha*, *Pitta*.

Dushya - *Rakta*, *Majja*, *Rasa*, *Twak*, *Mamsa* (primarily), *Meda*, *Vasa*, *Ambu*, *Lasika*, *Shukra*, *Oja*.

Agni - *Jatharagni* and *Dhatvagni Mandyata*

Srotasa - Raktavaha, Rasavaha, Medovaha, Mamsavaha, Majjavaha, Mutravaha, Shukravaha

Srotodusti - Sanga, Siranam Granthi and Vimarga Gamana

Udbhav Sthana- Vataavaha Nadi Sansthana

Vyakta Sthana - Hasta, Pada

Sanchara Sthana - Sira, Dhamani

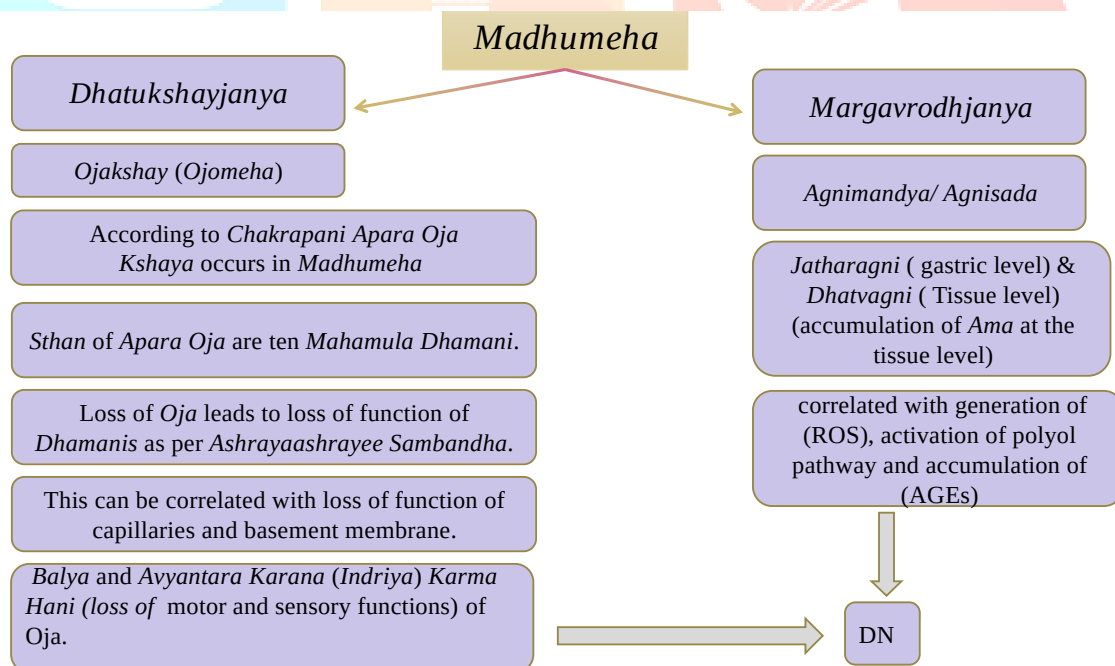
Adhistana - Basti

Svabhava - Kruchrasadhya

Rogamarga - Madhyama

Figure No-1

Figure showing Probable Pathophysiology of Madhumehajanya Shonita Avrutta Vata in correlation with Diabetic Neuropathy



2. Content of *Mustadi Yapana Basti*

Table No. 1

Showing Contents of *Mustadi Yapana Basti* with their Mode of action on DN

Sr No	Dravya	Latin name	Karma(mode of action)	Mode of action of <i>Dravya</i> according to different studies published.
1	<i>Musta</i> ^[12]	Cyperus rotundus	It is included in <i>Lekhaniya Gana</i> and has properties like <i>Deepana</i> , <i>Pachana</i> , <i>Lekhana</i> <i>Sheetaveerya</i> .	The analgesic effect of <i>C. rotundus</i> on paclitaxel-induced neuropathic pain is examined in this study, along with its mechanism. The findings imply that <i>C. rotundus</i> can reduce neuropathic pain by blocking NE/pAkt signalling in the spinal cord. ^[13]
2	<i>Ushira</i> ^[14]	Vetiveria zizanioidis	Included in <i>Dahaprashamana</i> , <i>Pittsanshamana gana</i> . It act as <i>Dahahara</i> (reduce burning sensation), <i>Pramehhara</i> (antidiabetic activity).	A higher blood glucose concentration increases the glucose's ability to bind to haemoglobin, which could contribute to the production of reactive oxygen species. Plant extracts are crucial in preventing the end products of glycosylation. ^[15]
3	<i>Bala</i> ^[16]	Sida cordifolia	It is included in <i>Bruhaniya</i> , <i>Vaatsanshamana Gana</i> . considered as best drug as <i>Balya</i> , <i>Tridosahara</i> , <i>Vrushya</i> and <i>Ojavardhaka</i> . <i>Bala</i> has been indicated as <i>Rasayana</i> by <i>Charak</i> and	This plant extract's capacity to scavenge DPPH may also be a reflection of its capacity to prevent ABTS+ production. Significant ABTS+ radical scavenging activity was observed by the extract, suggesting that the plant extract

			<i>Sushrut.</i>	may be helpful in treating pathological damage caused by radicals, particularly at higher concentrations. ^[17]
4	Aragvadha [18]	Cassia fistula	has potential in diseases like <i>Madhumeha</i> (diabetes mellitus), <i>Kushtha</i> (skin diseases), <i>Hridroga</i> (cardiac problems), <i>Vatarakta</i> (gout).	Blood glucose levels were considerably lowered in alloxan-induced diabetic rats given alcoholic extracts of Cassia fistula stem bark at 250 or 500 mg/kg for 21 days. Additionally, the extract restored normal levels of albumin, creatinine, TG, serum cholesterol, total proteins, and body weight. Additionally, the alcoholic extract demonstrated strong antioxidant activity by lowering in vitro-induced hydroxyl radicals, nitric oxide, and 2,2-diphenyl-1-picrylhydrazyl (DPPH). ^[19]
5	Rasna [20]	Pluchea lanceolata	has <i>Kaphavaatahara</i> , <i>Shoolhara</i> (reduction of pain), <i>Amapachana</i> qualities.	In mice, the hydroalcoholic extract of P. lanceolata demonstrated neuroprotection against the neurotoxicity of AlCl ₃ . ^[21]
6	Manjistha [22]	Rubia cordifolia	It is <i>Mehahara</i> (antidiabetic), <i>Shothahara</i> (antiinflammatory), <i>Vranahara</i> (wound healing), <i>Varnakruta</i> .	The study reports that treating rats with R. cordifolia restores diabetic neuropathy by reducing the expression of Bax and the ratio of Bax/Bcl2. In the diabetic neuropathy rats, this validated the apoptotic effect of caspase-3 and the Bax/Bcl-2 ratio. ^[23]

7	Kantkari [24]	Solanum xanthocarpum	It is <i>Mala, Arochaka Nashini, Agnimandyahara, Shoolhara, Kusthahara.</i>	The findings showed that the methanol extracts of <i>S. xanthocarpum</i> leaves, both in vitro and in the field, have strong antioxidant properties and were effective anti-hyperglycemic drugs at 200 mg/kg bw. [25]
8	Trayama a [26]	Gentiana kurroo	It is <i>Mehahara</i> (antidiabetic), <i>Shothahara, Vranahara, Varnakruta</i> .	In diabetic rats, the extracts (methanolic and hydroethanolic at 250 and 500 mg/kg body weight) considerably reduced the serum glucose concentrations. These concentrates also reduced a number of relevant biochemical indicators, including creatinine, cholesterol, alkaline phosphatase, serum glutamate oxaloacetate transaminase, and serum glutamate pyruvate transaminase. It was discovered that the extracts had a protective and regenerative impact on the pancreatic β -cells in diabetic rats. [27]
9	Punarnava a [28]	Boerhavia diffusa	It is included in <i>Vayasthapana gana</i> (anti aging), it has properties like <i>Deepana, Tridoshaghna, sara</i> (property of mobility).	Punarnava <i>Boerhavia diffusa</i> reduction in fructose biphosphate and glucose-6-phosphatase activity, increase in plasma insulin levels, and antioxidant. [29]
10	Bibhitaki [30]	Terminalia bellirica	It shows antidiabetic activity. It also decreases <i>Shariragata-kleda</i> therefore beneficial in <i>Bahumutrata</i> and because of	At concentrations of 0.5 mg/ml and higher, the BRIN-BD11 cells' concentration-dependent insulin production was

			its <i>Laghu Guna</i> and <i>Bhedana</i> action it is <i>Srotoshodhaka</i> .	enhanced by the <i>T. bellirica</i> aqueous extract. <i>T. bellirica</i> improved cellular glucose transport in differentiated 3T3-L1 adipocytes in addition to its strong β -cell-stimulatory actions. ^[31]
11	<i>Gudhuchi</i> [32]	<i>Tinospora cordifolia</i>	It is included in <i>Vayasthapana</i> , <i>Dahaprashamana Gana</i> . It act as <i>Tridoshghna</i> , <i>Rasayana</i> , <i>Balya</i> , <i>Dahahara</i> , <i>Mehahara</i> .	In vitro, the effect of TC on aldose reductase inhibition was observed. It showed an inhibitory effect even though its IC50 was higher than that of traditional quercetin. Therefore, rather than its anti-hyperglycemic qualities, TC's therapeutic effects on diabetic neuropathy appear to be due to its analgesic qualities. Aldose reductase inhibition may promote this action. ^[33]
12	<i>Shaliparni</i> [34]	<i>Desmodium Gangeticum</i>	It act as <i>Tridoshna</i> , <i>Bruhana</i> , <i>Rasyana</i> .	After three weeks of treatment with aerial portions of <i>D. gangeticum</i> extract (DG, 100 and 250 mg/kg body weight), diabetic rats' blood glucose levels significantly decreased. Insulin secretion from MIN6 cells cultured as monolayers and pseudoislets was significantly boosted by <i>D. gangeticum</i> extract, suggesting that the antidiabetic action may be due to increased insulin secretion. ^[35]

13	Prushnapa rni ^[36]	Uraria picta	It act as <i>Tridoshna</i> , <i>Dahahara</i> , <i>Vrushya</i> and showed significant antioxidant activity.	The plant can treat blood and heart problems, nervine tonic, general debility, and snake poison. ^[37]
14	Gokshura ^[38]	Tribulus terrestris	It is included in <i>Mutravirechaniya</i> , <i>Shothahara Gana</i> . It act as <i>Deepana</i> , <i>Pramehahara</i> , <i>Vrushya</i> , <i>Balya</i> , <i>Bastishodhana</i> , <i>Vaatpittashamaka</i> .	In diabetic rabbits, the effectiveness of <i>Tribulus terrestris</i> extract in restoring normal blood glucose levels, both at baseline and after meals, has previously been documented. These investigations also showed an improvement in insulinemia. ^[39]
15	Kutaki ^[40]	Picrorrhiza kurroo	It is included in <i>Bhedaniya</i> , <i>Lekhaniya Gana</i> and it has properties like <i>Pramehahara</i> , <i>Dahahara</i> , <i>Deepana</i> , <i>Lekhana</i> , <i>Kaphapittahara</i> .	According to the study, standardised PKE enhanced the insulin-mediated translocation of GLUT-4 from the cytosol to the plasma membrane, improving skeletal muscle glucose uptake and glycaemic control in diabetic rats. ^[41]
16	Bruhati ^[42]	Solanum indicum	It has properties like <i>Deepana</i> , <i>Kaphavaatahara</i> , <i>Agnimandyahara</i> (enhance <i>Agni</i>).	The extract had a positive impact on the blood glucose level in the current investigation. It increased and regulated the levels of endogenous antioxidants such glutathione peroxidase, catalase, and superoxide dismutase. The study's findings demonstrated that the fruit extract from <i>Solanum indicum</i> has antioxidant and antidiabetic properties that are similar to those of Glibenclamide. ^[43]

17	Madanphala ^[44]	Randia spinosa	possess properties like <i>Ushna</i> , <i>Laghu</i> , <i>Sukshma</i> , <i>Vyavayi</i> and <i>Vikasi</i> and it execute their action with the help of these five important properties.	According to various sources, <i>R. cordifolia</i> has potent antioxidant properties, and studies on its extract have revealed that it has considerable anti-radical properties. In light of this, both the cold allodynia and hot plate method of drug-treating rats with an alcoholic extract of the roots and rhizomes of <i>R. cordifolia</i> significantly decreased the withdrawal latency in paclitaxel-induced neuropathic pain in rats. The outcomes could be a result of GABA's involvement or an antioxidant mechanism. ^[45]
18	Shatapushpa ^[46]	Anethum sowa	It is <i>Tikshna</i> , <i>Kaphavaatahara</i> , <i>Deepana</i> properties.	The stable scavenger DPPH was used to evaluate the free radical scavenging activity of <i>A. sowa</i> root extracts, ascorbic acid (ASA), and tert-butyl-1-hydroxytoluene (BHT) with minor adjustments to the Brand-Williams method. ^[47]
19	Yashtimadhu ^[48]	Glycyrriza glabra	Included in <i>Jivaniya</i> , <i>Mutravirajaniya</i> , <i>Sandhaniya Gana</i> . It shows <i>Balavarnakruta</i> , <i>Shukrala</i> , <i>Shotha</i> , <i>Vatahara</i> activities and used in treatment of neuropathic pain.	Neuroprotective, anti-inflammatory, antibacterial, anticancer, gastroprotective, hepatoprotective, and cardioprotective properties are only a few of the pharmacological activity that these plants display. ^[49]
20	Rasanjana	Berberis	<i>Ushna</i> , <i>Rasayana</i> , <i>Tikta</i> , <i>Chedana</i> , <i>Shleshmanetra</i>	Berberine's many positive benefits, such as lowering

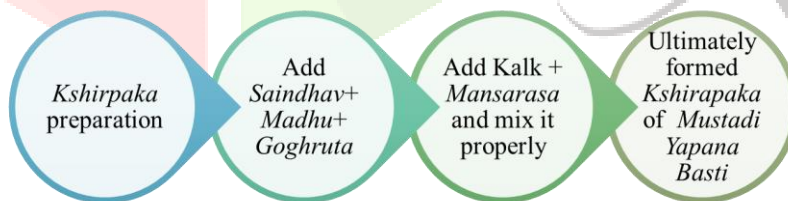
	[50]	aristata	<i>Vikaranuta.</i>	cholesterol, enhancing endothelial function, controlling blood sugar, and having anti-inflammatory and antioxidant qualities, make it a promising supplement for preventing cardiovascular disease. [51]
21	Priyangu [52]	Prunus mahaleb	has <i>Sandhaniya</i> , <i>Vatapittaghna</i> , <i>Dahahara</i> , <i>Pramehahara</i> qualities.	Hypothalamic neurones' suppression of the hydrogen peroxide-induced DOPAC/DA ratio suggests encouraging neuroprotective effects. [53]
22	Godugdha (milk) [54]	---	<i>Prinana</i> , <i>Medhya</i> , <i>Vrushya</i> , <i>Bruhana</i> , <i>Balya</i> , <i>Manaskara</i> , <i>Jeevaniya</i> , <i>Dahahara</i> , <i>Shosha</i> , <i>Sandhanam</i> , <i>Sarvapraniibhutam</i> <i>Satmya</i> used in the basti helps in maintaining Bala of the patients.	---
23	Mamsarasa (meat soup)	---	properties like <i>Snigdha</i> , <i>Guru</i> , <i>Balya</i> , <i>Rasayana</i> , <i>Sheet</i> <i>Veerya</i> reduces <i>Vata</i> and nourishes <i>Dhatu</i>	---
24	Madhu (honey)	---	It possesses <i>Ushna Veerya</i> (hot potency), <i>Guna</i> (property), and <i>Ruksha</i> (dry). The two most crucial qualities are <i>Sukshma Marga Anusaritva</i> (the ability to enter the body's smallest pathways) and <i>Yogavahitva</i> (synergistic). It stabilises an emulsion by acting as an emulsifier. It has a stimulative	

			effect on probiotic bacteria in the colon and is an excellent antioxidant.	
25	Lavana (salt)		It contains <i>Sukshma</i> , <i>Teekshna</i> , <i>Snigdha</i> , and <i>Laghu Guna</i> , which facilitate the biopurification and absorption of <i>Basti</i> . It can enter the body's microchannels thanks to its <i>Sukshma</i> property. Because of its <i>Teekshna</i> property, it breaks down the morbid <i>Malas</i> and clears the channels.	

3. Preparation of *Basti*:

Figure No-2

Figure showing Preparation of *Mustadi Yapana Basti* ^[55]



4. Probable mode of action of *Mustadi Yapana Basti*

The most crucial aspect of the *Panchkarma* practices is thought to be *Basti*. According to Chakrapani, *Guda* is the *Mula* of the body which is where all of the *Sira* are located. The body receives nutrients from the *Sneha* administered through *Guda*, which reaches up to the head. ^[56] *Basti* is given through the anal canal in the *Pakvashaya*, but its ingredients work throughout the body, first stimulating the gut-brain axis. According to Sushruta, when *Basti* is administered correctly, it stays in the *Pakvasaya*, *Shroni*, and beneath *Nabhi*. *Virya* of *Basti Dravya* is then distributed throughout the body by *Srotas*. ^[57] whereas *Basti* only remains in the body for a short time being expelled along with *Mala* by the actions of *Apana Vayu*, the

Dosha from the head to the foot are thrown out of the body by force because of the *Virya* of *Basti* and has two functions: It expels vitiated *Dosha* and nourishes the body. First, the *Basti Dravya*, the active principles of *Dravya* are absorbed; which enables a systemic action. Its second significant effect is related to the activation of higher centers through the gut-brain axis and the stimulated elimination of morbid components or *Dosha* accountable for the illness from the colon.

Because of its components, the *Basti* may alter the variety of intestinal microbes. There is compelling evidence that the gut microbiota significantly influences the bidirectional connections of the gut-nervous system and interacts with the central nervous system through neuro endocrine system and brain chemistry modulation.^[58] *Basti* administration may cause certain neuro- immuno-endocrine reactions, which could have a systemic therapeutic impact.

Because of its *Rasayana* action, *Yapana Basti* can be used for prolonged periods without experiencing any side effects. It possesses qualities of both *Niruha Basti* and *Sneha Basti*.^[59] It can relieve *Vata*, which is triggered by *Avarana* or *Dhatukshaya*. *Yapana Basti* is used in all forms of *Avrita Vata*.^[60] It can be administered in both young and old, healthy and ill.^[61] All illnesses can be cured by *Yapana Basti*, which is also appropriate for all seasons.^[62] *Mustadi Yapana Basti* is a water-based oil emulsion made from a blend of honey, rock salt, lipid, and medicinal powder decoction made with milk and meat soup. It is administered via the rectal route and enters the bloodstream through the sigmoid colon's and the rectum's microvilli then travel to the liver via the mesenteric vessels, portal circulation, and hepatic vessels. Thus, the liver is the site of direct transformation, which circulates throughout the body for cellular metabolism. The term "*Shonita Prabhava*" in Ayurveda refers to the liver, or *Yakruta*, which is essentially made of blood during embryology. The majority of the medications used in *Mustadi Yapana Basti* are *Tikta Dravya*, which are *Raktaprasadaka* (blood purifiers). Thus, these medications aid in enhancing the functions of liver, which are crucial for regulating blood sugar levels.

The milk, *Mamsarasa* and *Ghrita* used to make *Mustadi Yapana Basti* have qualities like *Snigdha*, *Balya*, *Rasayana*, and *Sheet Veerya*, which lower *Vata* and nourish the pancreas, promoting healthy organ function.

The predominance of *Tikta Rasa* in the formulation boosts digestive strength, eliminates *Ama* from the systems, and opens the body's channels, or *Srotoshodhana*. *S. cordifolia*, *Cyperus rotundus*, *Pluchea lanceolata*, *Laghu Panchmoola*, and other constituents in *Vata Shamaka* aid in the regular flow of *Vata Dosha*, open blockages, and effectively remove *Srotas* obstructions and nourishing factors for *Dhatu*. The majority of *Kwatha* medications have the *Srotoshodhana* feature. *Mustadi Yapana Basti* has a *Janan* (creation of body elements) feature. If nourishing materials are adequately supplied, undisturbed *Srotas*, *Dhatwagni*, and *Vayu* are necessary for the formation of any bodily element.^[63]

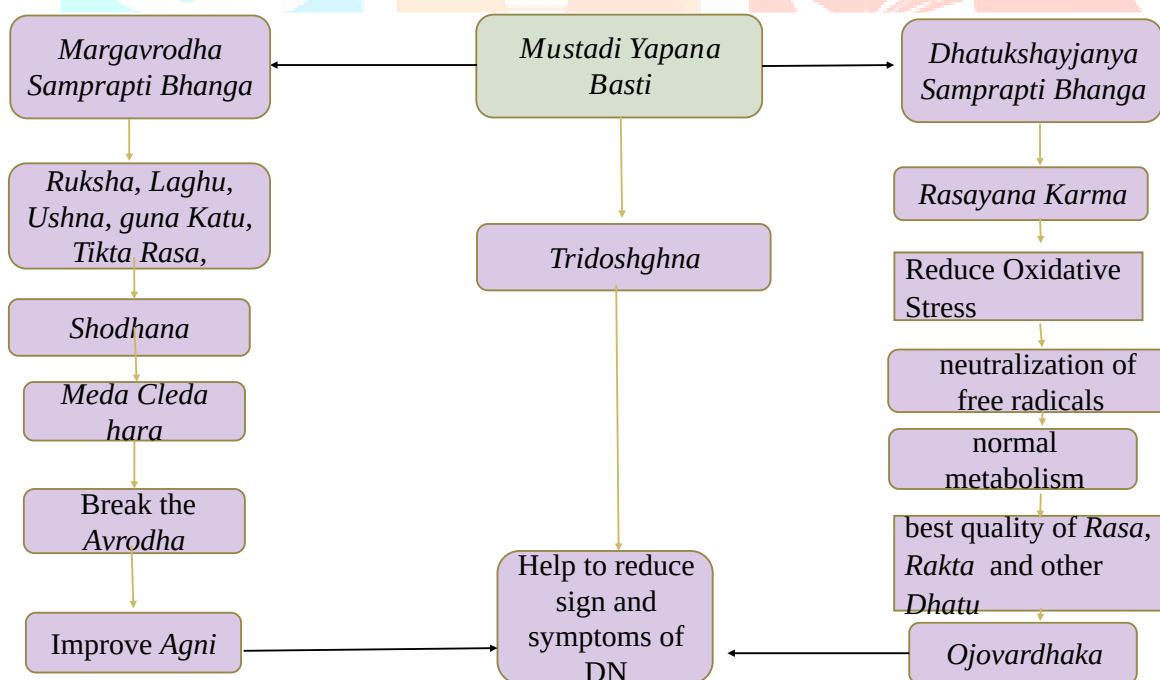
Mustadi Yapana Basti has more *Rasayana Guna* and *Dhatuvar dhaka* attributes. Because of its *Vatanulomana*, *Srotoshuddhi*, and *Rasayana* qualities, *Mustadi Yapana Basti* specifically reduces the

Avarana of Vata. By eliminating *Margavarodha* (channel cleansing) and *Dhatukshaya* through its *Brimhana* (nourishing) quality, *Basti* can disrupt the pathogenesis of *Vata Vyadhi*. *Laghu*, *Ruksha*, *Ushna Guna* of *Mustadi Yapana Basti* may be able to shatter the *Avarodha* of *Meda Kleda* and normalize the *Vyana Vayu*.

According to the Charak, the first line of treatment for patients with *Prameha* is *Santarpana* treatment, while *Mustadi Yapana Basti* is primarily *Santarpanjanya Basti*.^[64] By producing the highest quality of *Rasa*, *Rakta*, and other *Dhatu*, *Mustadi Yapana Basti*'s *Rasayana Karma* may be beneficial for this condition and help to alleviate the sickness and its complications. *Rasayana* improves digestion and metabolism, nourishes bodily tissues, increases microcirculation, and works at the *Dosha* level (*Srotoshodhaka*). It also protects bodily cells from oxidative damage by acting as antioxidants. Additionally, it has immunomodulatory, neuroprotective, and possesses scavenging qualities of free radicals, as well as a reduction in neuronal death. It may prevent the development of diabetic neuropathy and reduce its symptoms by inhibiting the production of AGES and controlling the polyol pathway.

Figure No. 3

Showing Probable mode of action of Mustadi Yapana Basti



Discussion:

The possible mechanism of DN according to the review literature is Polyol pathway hyperactivity, Hyperglycaemia and hyperlipidemia, Hexosamine pathway, impaired insulin signaling, Oxidative and nitrosative stress, *Tridosh Dushti*, *Vata Prakopa*, *Prameha Updrava*, *Agnimandya*, *Marvarodhjanya*, *Vataj Nanatmaka Vikara*. According to Ayurved, it can be correlated with *Madhumehajanya Shonita Avritta Vata*

for understanding clinical pathophysiology for management purposes. There is no direct reference for DN. But as Charak says that all diseases need not always be assigned with a particular name.

Mustadi Yapana Basti improves the qualities of *Dhatu* up to the formation of *Oja* by virtue of its *Rasayana*, *Balya* and *Dhatu Vriddhikara* properties which are believed to facilitate maintain metabolism and might have improved the excretory function of the colon, regulation of blood flow to the colonic mucosa, it may act as a stimulator for many intraluminal, luminal and whole body function. Regulatory peptides like serotonin, enteroglucagon, vasoactive intestinal polypeptides (VIP) are produced in the colon. Thus the drugs absorbed into circulation can act directly on neurons and modify neural function or they may reflexly act by sending

Conclusion

Hence, it can be concluded that *Basti* is useful in treating diabetic neuropathy w.s.r.to *Madhumehajanya Shonita Avrutta Vata* by removing the excess of deranged metabolic waste and the *Avarana of Vata*. This normalizes the functioning of *Dosha* and prevents the depletion of *Dhatu*s.

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Conflict of interest - None

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