



Integrated Management of Diabetic Peripheral Neuropathy with Naturopathy, Yoga And Diet Control: A Case Report

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ABSTRACT:

Today, among metabolic disorders, diabetes can be considered the most common, increasing, serious, and costly public health problem in the World. Among them, microangiopathies leading to nephropathies, optic nerve damage associated with retinopathies, and diabetic peripheral neuropathy (DPN) associated with pain, tingling, or numbness, loss of feeling in the hands, arms, feet, and legs can occur primarily due to uncontrolled diabetes levels. The main reason to visit in a primary care setting is chronic pain. Moreover, it is difficult to treat because of its severity, chronicity, and resistance to simple analgesics. Non-pharmacological approaches and non-conventional treatments such as naturopathy, yoga, and diet modification are used to relieve pain, improve well-being, and treat acute, chronic, and degenerative conditions of peripheral neuropathy associated with Type 2 Diabetes Mellitus.

Keywords: Peripheral Neuropathy, Naturopathy, Yoga, Diet Control

INTRODUCTION

Diabetes mellitus (DM) is a common cause of neuropathy worldwide. Diabetic neuropathies are a family of nerve disorders caused by diabetes. People with diabetes can, over time develop nerve damage throughout the body and most often in the legs, feet, and arm. Diabetic neuropathy leads to numbness, tingling, and sometimes burning sensation in the feet and also pain and weakness in the upper and lower extremities.¹ The prevalence of neuropathy in diabetic patients ranges from 10.5% to 32.2% in India and up to 50% of patients will eventually develop neuropathy during the course of their disease according to western literature.² Increased blood sugar leads to arrowing of capillaries supplying peripheral nerves and decreased oxygen and nutrient supply to nerves

resulting into damage to sensory and motor nerves.³ Prevention of diabetic neuropathies focuses on glucose control and lifestyle modifications. However, no compelling evidence exists in support of glycaemic control or lifestyle management as therapies for neuropathic pain in diabetes or prediabetes which leaves limited options for treatment.⁴ Conventional treatments for diabetes including a variety of medications may have short or long-term side effects. Here, I am going to present a case of diabetic neuropathy relieved by yoga and naturopathy along with diet control.

CASE PRESENTATION

A 65 years old male visited the Yog Wellness Centre, Sultanpur, Uttar Pradesh with presenting complaints of



pain in multiple joints, numbness and tingling sensation in both hands and legs, cramping in the palm of the left hand 3-4 times in a day, pain in the bilateral knee joint and calf muscles, burning sensation in bilateral feet along with the increased frequency of urine during the night. (**Figure 1**) His vitals were blood pressure 120/80mmHg, pulse rate 72 and respiratory rate 16. He was a known case of Type-2 Diabetes for 2 years. He was under allopathic diabetic medication for 1.5 months [Cap- Ecosporin-AV 75mg (0-0-1), Tab- Voglimac GM2 (1-tab empty stomach), Tab-Bigomet -SR 1000 (0- ½ -1)] and also some ayurvedic medicine. His personal history showed disturbed sleep, poor appetite, and constipation. His vitals were within normal range and his BMI was 22. Fasting blood sugar 182 mg/dl, postprandial blood sugar 272 mg/dl, ESR test= 12mm/1hour, and RA test was negative. Based on history and available records, the patient was diagnosed with diabetic neuropathy. Table 1

Treatment plan and treatment progress

Conservative management was started with yoga, naturopathy, and diet control.

Naturopathic Management Table 2

Yoga therapy is depicted in the table below.

Lifestyle modification instructions were maintaining a proper sleep-wake pattern of 10 pm of sleeping and 4 am of awakening, drinking plenty of water in the morning, morning walking on the green grass daily, following a healthy diet, always wearing loose cotton clothes, daily practicing 1-hour yoga, proper exposure to sunlight, protecting your skin, and feet, and weekly check-up the blood sugar level. Diet chart Table 3

Food advised avoiding i.e., dairy products, whole grains, non-vegetarian items, tea/coffee, fried/junk food, and alcohol, sugar, potato, sweet potatoes, etc.

Treatment progress was as follows: after the 2nd-day, fasting blood sugar was 182mg/dl and postprandial blood sugar 272 mg/dl. The patient was advised to continue to follow the diet chart. After 2 days, his Ecosprin -AV 75 was stopped. On the first 2 days, the patient did not feel any improvement except feeling fresh. On 3rd day, he felt a bit relaxed, and FBS 174 mg/dl and PP 300 mg/dl. On the 5th day, he was 40% relaxed, reduced muscular cramp and burning sensation of palm and sole, calf muscle pain were also relieved. On the 6th day, bloating was still present, then I advised him to continue the treatment. On the 7th day, I asked him to stop allopathic medicines. On the 8th day, his sugar level became normal which is FBS 90 mg/dl and PP

122 mg/ dl. The patient felt relaxed and happy. After that, I advised him to start acupuncture. On the 9th day, the patient felt slightly relieved from bloating also. On the 10th day, the patient was 50% relieved in his symptoms and he was feeling better than before.

Follow-up instructions were abdomen pack at night, Yoga, pranayama, and relaxation technique walking daily in the morning, suggested diet plan, and weekly check-ups on the blood sugar level.

DISCUSSION

Regular physical activity improves blood glucose control and can prevent or delay type 2 diabetes (T2D), along with positively affecting lipids, blood pressure, cardiovascular events, mortality, and quality of life.⁵ Both resistance training and endurance exercise seem to have beneficial effects on waist circumference, insulin sensitivity, and thus diabetes risk.⁶ Diabetes is a chronic metabolic disease that adversely affects the quality of life. Psychological stress and negative mood have a bidirectional effect in the control of diabetes.⁷ Yoga and naturopathy result in improvements in physical exercise, behavioral changes, and dietary practices, in addition to its effects on relaxation and stress management. Abdominal stretching during yoga exercises is believed to result in the regeneration of pancreatic cells. Yoga reduces oxidative stress, as demonstrated by reductions in serum malondialdehyde, interleukin 6, and leptin levels, and improvements in adiponectin levels.⁸ In patients with type 2 diabetes, improvements in glycaemic control with up-titration of the insulin regimen or anti-diabetic medicines, without diet control or exercise, resulting in weight gain. In contrast, yoga improves glycaemic control without increasing body weight, and some studies have found it to reduce body weight. It also results in the reduction of fasting blood sugar, postprandial blood sugar, hemoglobin A1c, and anti-diabetic drug requirements, suggesting improved glycaemic control.⁹ Treatments like gastro-hepatic pack (GHP) and cold hip bath (CHB) are beneficial in T2D. GHP helps to reduce FBS by increasing peripheral circulation and tissue oxygenation, and increasing metabolic rate. CHB also helps to increase the metabolic rate by thermogenic means. Application of a mud pack to the abdomen enhances peripheral circulation, increases metabolic rate, and hence helps reduce blood glucose levels.¹⁰

CONCLUSION

Integrated management of yoga and naturopathy along with proper diet control results in improved symptoms of

diabetes and diabetic neuropathy.

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Figure 1

Table 1 Shows Based on history and available records, the patient was diagnosed with diabetic neuropathy.

Pre-treatment and post-treatment changes		
Parameters	Pre-treatment	Post-treatment
Fasting blood sugar (mg/dl)	182	77
Post-prandial blood sugar (mg/dl)	272	110
Random Blood sugar (mg/dl)	260	106
Hb	12.2	13.4
Hb1Ac	7.8	5.6
BMI	22	25

Table 2 Shows Naturopathic Management

1. Hydrotherapy	Duration	Effects
Neutral Hip Bath	20 minutes	It gives a calmative effect upon the viscera of the pelvis and lower abdomen and relieves nervous irritability and congestion of the pelvic viscera. It is most effective in the painful and inflammatory condition of the lower abdomen.
Steam Bath	10 minutes	Eliminates toxins through sweating which reduces the burden on vital organs like the kidney, lungs, and liver.
Neutral Immersion Bath	20 minutes	It lessens nerve sensibility and bloodless skin and is more sensitive than congested skin. It excites the activity of both skin and kidneys to a marked degree. It reduces the rate of heat production and maintains the internal temperature.
Hot Foot and Arm Bath	10 minutes	Balances the circulation by the dilation of the blood vessels of the leg and arm and relieves congestion of the brain and other organs in the upper half of the body.
Gastro-Hepatic Pack	30 minutes	Increase circulation to the pancreas and liver (application of heat on abdomen causes increased peripheral circulation and a significant increase in the muscle tissue total hemoglobin level and the local application of cold induces alterations in the thermogenesis mechanism leading to increased metabolic rate).
Cold Abdominal Pack	30 minutes	Cold acts as a tonic and it helps to activate the abdominal organs like the liver, pancreas, stomach and enhances digestion. Also influences the metabolism.

Hot Arm and Leg Pack	20 minutes	Hot arm and leg pack is a powerful derivative active measure. Applications made to the arm and leg affect to a marked degree the circulation in the head, throat, chest, and pelvis.
Enema		Enemas are the injection of fluids used to cleanse or stimulate the emptying of the bowel and work as a stimulant for the liver and pancreas and the mucous membrane becomes strong.
2. Mud Therapy	20 minutes	Mud contains minerals like sulfur, zinc, magnesium, and bromine that are said to draw out the impurities from the skin. Exfoliate dead skin cell. Relax sore muscles and joints.
Mud pack to abdomen		It relieves all forms of indigestion and it is effective in decreasing intestinal heat and stimulating peristalsis.
Mud pack to eye		It reduces irritation, itching, or other allergic conditions such as conjunctivitis and haemorrhage of the eyeball. It is also effective in glaucoma, errors like near and it works to reduce the eyeball tension.
3. Manipulative therapy	30 minutes	Manipulative therapy increases brain serotonin and dopamine, the combination of these effects leads to a happier individual.
Partial massage to abdomen		Tone and strengthen the abdominal muscle, arm leg, and neck. Release muscle spasms and increase blood flow to the affected area.
Partial massage to arm, leg and neck with hot sand fomentation		Increases flexibility and range of motion, Hot sand fomentation helps to reduce pain and stiffness.
4. Foot Reflexology	10 minutes	Foot reflexology is a useful nursing intervention to relieve fatigue and to promote sleep.
5. Sun Bath	20 minutes	Helps body to metabolize vitamin- D . Enhance the immune system . Eliminate the toxic through the sweating and encourage the circulation. Strengthening the bone.
6. Accupressure	20 minutes	Acupressure therapy stimulates the body’s circulatory, lymphatic and hormonal systems.
7. Acupuncture DU-20, LI-4, LI-11, EX-28, EX-36, SJ-5, KI-1, KI-2, SP-6, SP-15, ST-25, ST-36, ST-40, GB-26, GB-34	20 minutes	Acupuncture points stimulate the central nervous system and release chemicals in the muscles, spinal cord, and brain. These biochemical changes may enhance the body’s natural healing abilities and promote physical and emotional well-being.

The sequence of prescribed yoga	Number of counts	Effect
1. Loosening exercise	10	This group of asanas is concerned with loosening up the joints of the body. It is particularly useful for eliminating energy blockages in the joints and outer extremities of the body and works on the pranic and mental bodies as well.
2. Asana		
<i>Vajrasana</i>	9	It increases the efficiency of the entire digestive system, relieving stomach ailments.
<i>Mandukasana</i>	9	While performing mandukasana, we put pressure on the abdomen region producing stress hormones. It energizes the organs like the pancreas, kidney, and liver and enhances their functioning.
<i>Pawanmuktasana</i>	8	It promotes digestion, strengthens abdominal muscle and massages the abdominal organs.
<i>Bhujangasan</i>	8	Relieve stress and fatigue, and stimulates and toned abdominal organs.
<i>Ardhamatsyendrasana</i>	7	This asana calms your mind, helping alleviate stress, depression and anxiety. Massage the internal organs and regulates the digestive system.
<i>Vakrasana</i>	7	It regulates the secretion digestive system. It massages the abdominal organs and reduce belly fat.
3. Pranayama		
<i>Nadisodhanan</i>	10	Open the Nadi (energy channels), and removes blockages from them and the body. Improve blood supply to the brain.
<i>Anuloma-vilom</i>	10	It has physical and mental health benefits, including improving patience, focus, and control. Relief from stress, anxiety and improvement to the brain.
<i>kapalbhati</i>	6	Improve digestion and blood circulation, increases metabolic rate and stimulate the internal organs help people with diabetics.
<i>Bhastrika</i>	6	It is good for the brain to oxygenate. It benefits the nervous and motor system. It is great for energizing the body and the mind. Good for people with depression and anxiety.
<i>Bhramari</i>	10	It releases cerebral tension and provides better sleep.
4. Deep Relaxation Technique	10	Reducing the activity of stress hormones. Reducing muscle tension, and chronic pain, maintaining normal blood sugar levels, lowering blood pressure, and improving digestion.

Table 3 Diet chart

Wake-up	Lukewarm water empty stomach.
7-7:30am	Amla juice
8:30am	Sprouts + grind coconut +salad
10:30- 11 am	4 spoon flaxseed +4 spoon sesame seed + 10 spoon fenugreek seed + 15 almonds
2:00pm	Steamed vegetables + vegetables soup
5:00pm	Papaya 300- 500gm
7:00pm	4 spoon flaxseed + 4 spoon sesame seed + 10 spoon fenugreek seed + 15 almonds
9:00pm	Steamed vegetables (like- spinach, bottle guard, bitter guard, etc)