



Integrated Management of Type-2 Diabetes Mellitus Associated Hyperlipidemia with Naturopathy, Yoga and Diet Control: A Case Report

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Article Info

Article history:

Received on: 14-06-2022

Accepted on: 10-08-2022

Available online: 31-08-2022

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ABSTRACT:

Diabetes mellitus is a syndrome-like systemic problem that has multi-organ complications. Early intervention may prevent several manifestations of different organs. Diabetes disrupts the healing process, immunity, and may result in renal complications, and retinopathies. Our increasing sedentary lifestyle, bad food habits and lifestyle choices like smoking and drinking are responsible for the progression of this dreaded disease. Various causes of diabetes may be pathological, hereditary, congenital, faulty lifestyle, pancreatic malfunction and the build-up of toxins in the body. Many treatment modalities are available for the management of this condition but none of these give promising results with long-term drug dependency. The drug used in the treatment may have unwanted side effects. Yoga acts like a panacea for diabetes. Yoga provides an ideal cure for diabetes management. Yoga therapy is perceivably quick in the earlier stages and extremely beneficial after continuous practice for hyperglycemia. Yoga improves the psychological makeup and general feeling of well-being. In the present case report, I have discussed a case of diabetes associated with hyperlipidemia with naturopathy, yoga, and diet modification.

Keywords: Case Report, Diabetes Mellitus, Diet control, Naturopathy, Yoga

INTRODUCTION

Type 2 diabetes mellitus is a major global health problem. The World Health Organization estimates that diabetes, primarily type 2, affects 5.2% of the world's adult population.¹ Prevalence of diabetes in India is 10.4% affecting approximately 19 million population.² Several factors such as lack of awareness, ignorance about complications, poor adherence to medications and lifestyle interventions, bad health behaviours such as smoking and alcohol, physical inactivity and obesity contribute to the increasing prevalence of this problem. This happens probably due to defects in molecular machinery that mediates the action of insulin on its target cells.³ Excess

glucose in the blood ultimately results in high levels of glucose being present in the urine (glycosuria). This increases the urine output, which leads to dehydration and increase thirst.⁴ The disturbance of the body's vascular system combined with hyperglycaemic disease is due to compromised digestion of sugars, protein and electrolytes.⁵ Various pharmacological and non-pharmacological treatment modalities are available to manage diabetes mellitus without giving promising results. In the present case report, I have described management of type 2 diabetes mellitus with yoga and naturopathy.



CASE PRESENTATION

A 37-year-old male patient visited the Yog Wellness Center, Sultanpur, Uttar Pradesh India presenting with complaints of weakness, dry mouth, nausea, vomiting, feeling of hunger and increase in thirst, weight loss, frequent urination, blurred vision and a constant feeling of tiredness. (**Figure 1**) He had history of Malaria in 2017. His father was found to be a known diabetic. Patient was detected with diabetes mellitus through random blood testing in 2017 for which he was advised life style modifications and some ayurvedic medications which he could not recall. He had normal sweating, sleep, bowel movement and frequent micturition with no history of smoking and alcohol consumption. Vital data include pulse rate of 70, respiratory rate of 16/min, blood pressure 98/60 mmHg, height 168 cm, weight 73 kg, afebrile and BMI 25. Other associated parameters are depicted in **Table 1**.

Treatment Plan and Treatment Progress

Conservative management was started with *Shatkriya, Yoga, Naturopathy* and Diet control.

Table 2: *Shatkriyas*, Table 3: Yoga Therapy, Table 4: *Pranayam*, Table 5: Bandha, Mudras and Meditation, Table 6: Naturopathy Managements, Table 7: Diet Therapy

Patient was advised to avoid coffee, tea, smoking, alcohol, non-vegetarian food, oily and fried food, frozen /processed/fast/preserved/ refined edible items, white flour, white sugar, saturated fats/ hydrogenated oils, over eating/ untimely eating, late lunch, dinner/ late sleep, intake of water immediately before and after food, stress, anger, worry, hurry, depression, anxiety etc.

Follow up

- Regular eating of natural diet preferably two times in a day.
- *Yogasana/ Pranayam/Yognidra/* Meditation or relaxation twice in a day.
- Expose body to sunlight and fresh air as far as possible.
- Gastrohepatic pack, cold hip bath or cold compress, mud pack and abdomen massage once in a day.
- Chew well and eat with a peaceful mind.
- Drink water 4 to 5 litre per day.

Table 8: Shows Treatment Progress

DISCUSSION

India is the diabetes capital of the world.³ Increase in sedentary lifestyle, bad food habits and lifestyle choices like smoking and drinking are responsible for the

progression of this dreaded disease. If left untreated it leads to a multitude of serious health problems affecting both smaller and large vessels, i.e., microvascular and macrovascular complications respectively, the microvascular risks affect the renal, the most expensive complication with diabetes, with persistent kidney failure (nephropathy) and nerve injury (neuropathy) raising the likelihood with diabetic foot ulcers and/or amputations.³ Furthermore, eye injury (retinopathy) can due to blindness, while macrovascular disorders (coronary heart failure, peripheral artery disease, and stroke) can lead to blindness. The results suggest that the residential naturopathy and yoga intervention significantly reduced blood glucose levels and glycated haemoglobin levels. Studies shows that yoga, naturopathy and diet control significantly control blood glucose level.⁶⁻⁷ Fasting, in addition to lowering insulin levels, also improves insulin resistance significantly.⁸ Moreover, hot baths, yoga, fruit and vegetable diets, and active lifestyle also exert anti-inflammatory effects that also lead to glycemic control. Further, naturopathy and yoga-based intervention promises better glycemic control that could also reduce risk for cardiovascular diseases.⁹ Salt-restricted and plant-based vegetarian diet such as rich in fruits, vegetables, sprouts, nuts, salads, and juices shown to have better glycemic control in the study. The result is similar to another study.¹⁰

CONCLUSION

Integrated management of Yoga, Naturopathy and Diet therapy helps to improve blood sugar level and lipid profiles in the subjects of type 2 diabetes mellitus.

Acknowledgements - Nil

Conflict of interest - None

Source of finance & support - Nil

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How to cite this article: Singh P “Integrated Management Of Type-2 Diabetes Mellitus Associated Hyperlipidemia With Naturopathy, Yoga And Diet Control: A Case Report” *IRJAY*. [online] 2022;5(8); 107-120.
Available from: <https://irjay.com>
DOI link- <https://doi.org/10.47223/IRJAY.2022.5814>

Figure 1



Table 1: Haematological Parameters

Parameters	Pre-treatment	Post-treatment
Fasting blood sugar	140 mg/dl	108 mg/dl
Post- prandial blood sugar	240 mg/dl	140 mg/dl
Random blood sugar	270 mg/dl	170 mg/dl
HB A1C	7.3%	5.8%
Mean plasma glucose	183 mg/dl	132 mg/dl
Hb	11.2 g/dl	13.2 g/dl
Red blood cell count	4.42 mil/ul	5.5 mil/ul
Platelet count	148 thou/ul	170 thou/ul
Mean corpuscular HGB	38 pg	33 pg
Mean platelet volume	13.7 fL	11.2fL

Table 2: Lipid profile Parameters

Parameters	Pre- treatment	Post- treatment
Cholesterol	274 mg/dl	212 mg/dl
Triglycerides	504 mg/dl	260 mg/dl
HDL Cholesterol	32 mg/dl	38 mg/dl
Direct LDL Cholesterol	149 mg/dl	103 mg/dl
Non-HDL Cholesterol	242mg/dl	203 mg/dl
CHOL/HDL Ratio	11.2	7.6
LDL/HDL Ratio	5.2	3.7

Table 2: Shatkriyas

Shatkriyas	Frequency	Effects
➤ <i>Triphala water eye wash</i>	15 times	<ul style="list-style-type: none"> • It relieves eye problems and maintains good vision. • It is very effective in preventing dry eyes, cataracts, age-related, muscular degeneration, conjunctivitis, and glaucoma.
➤ <i>Jal neti</i>	12 times	<ul style="list-style-type: none"> • It calms the nervous system and the mind; it also relieves stress and brings clarity to the mind.
➤ <i>Vamandhanti</i>	12 times	<ul style="list-style-type: none"> • Vamandhanti offers relief in case of obesity, diabetes, flatulence, and constipation.
➤ <i>Agnisaar kriya</i>	15 times	<ul style="list-style-type: none"> • Agnisaar kriya squeezes and tones the internal organs including the liver and pancreas. • It regulates the proper secretion of insulin and products of the liver. • It also improves the metabolic rate of the body hence providing a soothing condition that can cure diabetes.
➤ <i>Laghushankh Prakshalan</i>	1 time	<ul style="list-style-type: none"> • Cleans up the gastrointestinal system from its impurities. • Enhances metabolism, and improves the functions of the digestive system. • Best for diabetic people along with-it maintaining body weight (helps to burn the extra calories).
➤ <i>Nauli kriya</i>	12 times	<ul style="list-style-type: none"> • Nauli strengthens the abdominal muscles and massages the intestine and lower abdomen. • It regulates blood pressure and has a preventative effect against diabetes.
➤ <i>Tratak</i>	15 times	<ul style="list-style-type: none"> • The tratak kriya strengthens eye muscles and improves vision and memory. • It also strengthens the ability to concentrate and calm the mind and also relieves mental stress.
➤ <i>Kapalbhati</i>	30 times	<ul style="list-style-type: none"> • Kapalbhathi is a breathing technique that directly stimulates the pancreas. • It promotes the secretion of insulin body to maintain blood glucose levels.

Table 3: Yoga Therapy

Yoga Therapy	Frequency	Effects
➤ Loosening exercise	30 times	<ul style="list-style-type: none"> • Improve the performance in physical activities. • Enable muscles to work most effectively.
➤ <i>Surya Namaskar</i>	30 times	<ul style="list-style-type: none"> • Surya Namaskar is an extremely beneficial yoga practice for people suffering from diabetes as it improves the blood circulation and management of insulin in the body.
Standing Series Asan		
➤ <i>Tadasana</i>	15 times	<ul style="list-style-type: none"> • The mountain pose creates more space within the body and allows the internal organs to work more efficiently. • Therefore, it improves blood circulation and promotes insulin sensitivity to control blood sugar levels in diabetic conditions.
➤ <i>Ardhakatichkrasan</i>	15 times	<ul style="list-style-type: none"> • Stimulates abdominal organs like the pancreas and controls blood sugar levels.
		<ul style="list-style-type: none"> • Effective to reduce stomach and thigh fat. • Beneficial for heart health and regulates blood pressure.
➤ <i>Padahastasan</i>	15 times	<ul style="list-style-type: none"> • Massages the digestive organs, and spinal nerves are stimulated and toned. • Improve metabolism and concentration.
➤ <i>Trikonasan</i>	15 times	<ul style="list-style-type: none"> • Boosts metabolism and in turn aids digestion, and fat reduction from thighs and tummy area.
Supine Series Asana		
➤ <i>Pawanmuktasana</i>	15 times	<ul style="list-style-type: none"> • Enhances the working of the kidneys, thereby helping those suffering from diabetes.
➤ <i>Vipareetkarni</i>	15 times	<ul style="list-style-type: none"> • It is a deeply relaxing pose that calms the nervous system, which in turn, helps lower stress and anxiety. • It helps to improve digestion and sleep.
➤ <i>Sarvangasana</i>	12 times	<ul style="list-style-type: none"> • This asana also helps in improving digestion, prevents constipation and cures other issues related to indigestion, and also provides good sleep
➤ <i>Naukasana</i>	15 times	<ul style="list-style-type: none"> • Improve digestion and function of abdominal organ-like pancreas, liver, and kidney. • Enhance sexual performance. • Improve cardiovascular system.
➤ <i>Halasana</i>	15 times	<ul style="list-style-type: none"> • It helps to control the adverse effect of diabetes on the body.

		<ul style="list-style-type: none"> • It helps to reduce belly fat and promotes the secretion of insulin in the body. • As a result, it controls blood sugar levels while regularly practicing halasana and minimizes the risk of diabetes type-2.
➤ <i>Shavasana</i>	30 times	<ul style="list-style-type: none"> • Calm the central nervous system, aiding the digestive system and immune system. • Calms the mind and reduces stress, reducing headache, fatigue, and anxiety.
➤ <i>Chakrasana</i>	15 times	<ul style="list-style-type: none"> • This asana helps in stretching the spine and relaxes it. • Regular practicing of the wheel pose helps in reducing stress and calm down the mind. • It strengthens the pancreas and stimulates the release of insulin for balancing blood sugar level.
Prone Series Asana		
➤ <i>Bhujangasan</i>	15 times	<ul style="list-style-type: none"> • It increases the strengthening of abdominal muscle (external obliques, internal obliques, pyramidalis, rectus abdominis, transversus abdominis). • It activates the manipura chakra and activates the function of abdominal organs. • It ultimately reduces the blood sugar level.
➤ <i>Dhanurasana</i>	15 times	<ul style="list-style-type: none"> • It helps in strengthening abdominal muscles, boosts digestion, and regulates the function of the pancreas. Therefore, this pose is suitable for people with diabetes.
➤ <i>Shalabhasana</i>	15 times	<ul style="list-style-type: none"> • This asana is extremely beneficial in the treatment of diabetes as it stimulates abdominal organs, exercises the leg and back muscles, and helps relieve stress.
➤ <i>Makrasana</i>	30 times	<ul style="list-style-type: none"> • This asana is a deeply restorative pose that helps relax your nervous system and strengthens the muscles of the back region.
Sitting Series Asana		
➤ <i>Vajrasana</i>	30 times	<ul style="list-style-type: none"> • keep the mind calm and stable. • Cure digestive acidity and gas formation.
➤ <i>Mandukasana</i>	30 times	<ul style="list-style-type: none"> • It is one of the best asanas for people with diabetes. • These help in stimulating the function of beta cells of the pancreas to increase the production of insulin hormones.
➤ <i>Ustrasana</i>	30 times	<ul style="list-style-type: none"> • It helps in stretching the pancreas to promote the release of insulin.

		<ul style="list-style-type: none"> • It also promotes better digestion health and improves the function of other glands
➤ <i>Shashankasna</i>	30 times	<ul style="list-style-type: none"> • The practice of shashankasana increases the flow of blood towards the brain which makes the brain cells more active. • It helps eliminate anger and has a cooling effect on the brain.
➤ <i>Pashchimottanasna</i>	30 times	<ul style="list-style-type: none"> • Massage and tone the abdominal and pelvic region including all organs such as the liver, pancreas, kidneys, adrenal, spleen, and intestines.
➤ <i>Vakrasana</i>	30 times	<ul style="list-style-type: none"> • Stimulates pancreas and helps in the management of diabetes. • Helps to increase flexibility of the spine. • It regulates the secretion of digestive juices, improving digestion and combating constipation.
➤ <i>Ardhamatsyendrasna</i>	20 times	<ul style="list-style-type: none"> • This asana massages the internal organs for better functioning. • It is a retreat for the liver and pancreas. • This asana involves a half spinal twist that helps in improving your energy levels and promotes the release of insulin in your body. • Therefore, this asana helps in controlling diabetes and keeps energy level high.
Relaxation Technique		
➤ Instant relaxation Technique (IRT)	10 times	<ul style="list-style-type: none"> • It is usually done at the beginning of the yoga practice. • The practice of IRT reduces the level of stress and decreases tension related to various reasons.
➤ Quick relaxation technique (QRT)	10 times	<ul style="list-style-type: none"> • QRT brings focus towards the breathing and the movement of the body. • QRT is done to relax the body to make it calm and improve blood circulation. • QRT is done after the practice of yoga poses. • QRT is done for about 5 minutes and can be done more than once a day.
➤ Deep relaxation technique (DRT)	15 times	<ul style="list-style-type: none"> • DRT is best done at the end of the yoga practice to release all the tension while retaining muscle strength. • DRT is done longer and is generally done for 15 -20 minutes.
➤ Yog Nidra	15 times	<ul style="list-style-type: none"> • Yog Nidra is a state of relaxation between the alpha and theta waves.

		<ul style="list-style-type: none"> • This state calms the autonomic nervous system that regulates the body’s processes that take place without a conscious effort. • In addition, it puts the parasympathetic nervous system into a deeper resting state. • It can also help manage immune function, blood pressure, level and induce restful sleep.
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Table 4: Pranayam

Pranayama		
➤ <i>Anulom - vilom</i>	30 times	<ul style="list-style-type: none"> • Alternate nostril breathing has calming effects on the nervous system facilitating homeostasis. • This manages the stress levels, helping in diabetes treatment.
➤ <i>Surya bhedan</i>	30 times	<ul style="list-style-type: none"> • Traditionally, Surya bhedi is said to stimulate the brain and increase body heat. • Increases the prana or vitality in the body, especially while feeling low. • Reducing anxiety, depression, and other mental illnesses.
➤ <i>Bhastrika</i>	15 times	<ul style="list-style-type: none"> • It is good for brain oxygenation. • It benefits the nervous and motor system. • It is great for energizing the body and the mind.
➤ <i>Ujjayi</i>	15 times	<ul style="list-style-type: none"> • Improve the concentration. • Release tension throughout the body.
➤ <i>Bhramari</i>	30 times	<ul style="list-style-type: none"> • It releases cerebral tension and soothes the nerves. • It relieves stress, agitation and anger. • It can also help to calm the body and mind before sleep.

Table 5: Bandha, Mudras and Meditation

Bandha		
➤ <i>Uddiyanbandh</i>	25 times	<ul style="list-style-type: none"> • Activates the Manipura chakra and solar plexus and stimulates intestinal activity and relief constipation. • Stimulates the pancreas and is helpful for diabetes. • Strengthens the immune system, balances the mind, soothes irritability and anger and dispels a depressive mood. •

Mudras		
➤ <i>Surya mudra</i>	15 times	<ul style="list-style-type: none"> • It enhances the fire elements in the body and generates heat this means improve metabolism. • With regular practice will see a reduction in weight and decrease in sugar levels.
➤ <i>Pran mudra</i>	15 times	<ul style="list-style-type: none"> • It improves the vital force of life while stimulating the root chakra. • It helps in relieving diabetic symptoms.
➤ <i>Apan mudra</i>	15 times	<ul style="list-style-type: none"> • It balances out the elements within the body. • This not only regulates the working of the body but also helps flush out unwanted toxins. • This helps to lower the blood sugar levels.
➤ <i>Gyan mudra</i>	30 times	<ul style="list-style-type: none"> • This mudra instills a sense of deep relaxation. • It helps overcome stress and anxiety.
➤ <i>Linga mudra</i>	15 times	<ul style="list-style-type: none"> • This mudra stimulates the fire elements in the body. • It increases metabolism and helps weight loss and also stable blood sugar.
Meditation		
➤ OM kara chanting	30 times	<ul style="list-style-type: none"> • Chanting OM calms mind and brings positive energy in to the body. • Chanting OM release stress from mind and control anger on a regular basis. • It creates positive energy that feels happier and stress-free. • It helps to focus and concentrate on one thing at a time.

Table 6: Naturopathy Managements

1.Hydrotherapy	Frequency	Effect
➤ Cold hip bath 18-24 degree C	15 times	<ul style="list-style-type: none"> • Helps to function eliminative organs properly.
➤ Cold compress	30 times	<ul style="list-style-type: none"> • It relieves all forms of indigestion. • It is effective in decreasing intestinal heat and stimulates peristaltic movement.
➤ Gastro hepatic pack	30 times	<ul style="list-style-type: none"> • 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.

➤ Steam bath	12 times	<ul style="list-style-type: none"> • Elimination of toxins through sweating reduces the burden on vital organs like the kidney, lungs and liver.
➤ Enema	12 times	<ul style="list-style-type: none"> • Enema treats constipation clearing out bowel. • Enema support weight loss, remove toxin and heavy metal from body. • Improve skin, immunity, blood pressure and energy level.
2. Mud Therapy		
➤ Mud pack to abdomen and eye	15 times	<ul style="list-style-type: none"> • Applying mud to the abdomen cure constipation, indigestion, flatulence, intestinal obstructions and also helpful in amoebiasis, colitis, enteritis and other bacterial disease. • It stimulates the function of internal organs. • Eye pack provides relaxation to the eyes, reduce the irritation of eyes in case of conjunctivitis, itching of the eyes, allergic condition and hemorrhage in the eyeball.
➤ Full mud bath	10 times	<ul style="list-style-type: none"> • Mud has therapeutic qualities due to rich in organic content. • Mud has detoxifying and toning effect on skin, activates different body organs and eliminates toxic matter from the body, improve the circulation of the whole body, remove the excess heat from the body, restore proper skin pH, help in natural hormonal balancing of body, beneficial effects on body and various diseases, relieves internal congestion and pain and mud has anti-aging effect, it regenerates healthy skin.
3. Manipulative Therapy		
➤ Massage to abdomen	15 times	<ul style="list-style-type: none"> • Massaging the abdomen stimulates the digestive system and increases efficiency of the liver and pancreas promotes better elimination of wastes.
➤ Full body massage	10 times	<ul style="list-style-type: none"> • Massage has been shown to drop glucose level, which can help to prevent hyperglycemia in diabetics. • Massage reduces the tension in the muscles and relieves muscular pain, reduce the burden on heart, relieve tension of the nerves, pores of skin are opened up thus helping of the elimination of toxins from the body through perspiration, increase the capacity of the blood to carry oxygen and to

		<p>utilize it effectively, activates the urinary system.</p> <ul style="list-style-type: none"> • Improve the range of motion, enhance immunity by stimulating lymph, increase joint flexibility, and lessen depression and anxiety.
4.Acupuncture	15 times	<ul style="list-style-type: none"> • Du 20, Du14, LI 11, LI18, Sp6, St36, Liv.3, Liv.13, GB 21, SJ20 • These all-acupuncture points may also regulate cortisol, which is a hormone signaling the body to feel stress. • Adjust the balance of hormones that affect diabetes, like – melatonin, insulin, glucocorticoid and epinephrine. • Acupuncture treatments for diabetes believe that the hormone reaction triggered by acupuncture can help in balancing the parts of the body that are not able to regulate sugar levels on their own. • Acupuncture could help to regulate pancreas function and insulin levels.
5.Reflexology	30 times	<ul style="list-style-type: none"> • According to reflex theory, organs, glands and other part of body are linked to specific points in the hands and feet. • It stimulates the function of liver and pancreas and helps to maintain the healthy blood sugar levels. • It improves blood and nerve supply, removing congestion and blockages, restoring balance, improving energy and relieving stress and tension.
6.Magnetic Therapy	30 times	<ul style="list-style-type: none"> • Magnetic belt useful in managing diabetes, normalizes the work of adrenal glands, strengthens weak bladder. • Improves enlargement of glands, liver disorder, the urinary infections and digestive system.
7. Fasting Therapy	4 times	<ul style="list-style-type: none"> • Fasting helps the vital energy to remove the toxin matter from blood and purify the system. • Give complete physical, physiological, mental and sensory rest. • Improves and strengthens immune system. • Repairs and rejuvenates the whole system. • Promotes blood sugar control by reducing insulin resistance.

Table 7: Diet Therapy

Time	Menu
5:00am	Drink two glass lukewarm water / Drink two glass of normal or copper charged water.
5:30am	Fenugreek kadha /Arjun kadha/Ginger kadha
7:00am	Bitter gourd juice (100ml) / Bottle gourd+ ginger+ coriander juice (100ml) / Fresh Amla juice (100ml)/ Lemon juice water (100ml)/Papaya leaf juice (100ml)/ Apple+ Carrot+ Beetroot juice (200ml)
7:30am	Sprouted green gram, Bengal gram, fenugreek + 4-5 Garlic cloves + soaked 6-7 almond and 6-7 black raisins, any seasonal fruits like orange, pineapple, guava, papaya, sweet lime, apple, Indian blackberry (jamun).
11:30am	Salads 250 gram (cucumber, carrot, turnip, beetroot, onion, tomatoes,)
12.00pm	Multigrain chapatti 1 or 2, green vegetables 250gm, moong daal 100 gm, 1 glass buttermilk+ Flax seed power.
3:00pm	Tender coconut water/ Lemon juice+ Lukewarm water 1glass/ Sweet lime juice/Cucumber,mint,ginger,coriander juice/ Pomegranate juice + Any seasonal citrus fruit.
6:30pm	Any Soup like- Beetroot soup, carrot soup, cucumber +coriander +ginger soup, Tomato soup, drumstick soup.
7:00pm	Multigrain chapatti 1 or 2, green vegetables 250gm, or Daliya + Flax seed powder.
9:00pm	If necessary, Apple can be given. Harsingar leaf kadha before sleep.

Table 8: Treatment Progress as follows

1 Week	<ul style="list-style-type: none"> • He felt good and relaxed • Fasting blood sugar 132mg /dl • Post-prandial blood sugar 230mg/dl • Random blood sugar 258mg/dl • Weight 71kgs • Blood pressure 102/68mmHg • Pulse rate 70beats /minute • Respiratory rate 16 breath /minute
2nd Week	<ul style="list-style-type: none"> • He felt very good and relaxed • Fasting blood sugar 128mg /dl • Post-prandial blood sugar 210mg/dl • Random blood sugar 220mg/dl • Weight 69kg • Blood pressure 104/68mmHg • Pulse rate 70beats /minute • Respiratory rate 18 breath /minute

<p>3rd Week</p>	<ul style="list-style-type: none"> • He felt very good and relaxed. • Fasting blood sugar 116mg /dl. • Post –prandial blood sugar 200mg/dl. • Random blood sugar 194mg/dl. • Weight 68kg • Blood pressure 106/70mmHg • Cholesterol 223mg/dl • Triglycerides 310mg/dl • HDL Cholesterol 36mg/dl • Direct LDL Cholesterol 119mg/dl • Non-HDL Cholesterol 238mg/dl • CHOL/HDL Ratio 9.2 • LDL/HDL Ratio 4.8
<p>4th Week</p>	<ul style="list-style-type: none"> • He felt excellent and very much relaxed. • Fasting blood sugar 108mg /dl. • Post –prandial blood sugar 140mg/dl. • Random blood sugar 170mg/dl. • HBA1C 5.8%. • Mean plasma glucose 132mg/dl. • Hb 13.2g/dl • Cholesterol 212mg/dl • Triglycerides 260mg/dl • HDL Cholesterol 38mgdl • Direct LDL Cholesterol 103mg/dl • Non-HDL Cholesterol 203mg/dl • CHOL/HDL Ratio 7.6 • LDL/HDL RATIO 3.7 • Red blood cell counts 5.5mil/ul • Platelet count 170thou/ul • Mean corpuscular HGB 33pg • Mean platelet volume 11.2fL • Weight 67kgs • Blood pressure 110/72mmHg