**International Research Journal of Ayurveda & Yoga**
Vol. 6 (1),01-09, Jan,2023
ISSN: 2581-785X;https://irjay.com/
DOI: **10.47223/IRJAY.2023.6101**

# An Integrated Management of Type-2 Diabetes Mellitus associated with Hypertension and Dyslipidemia with Naturopathy and Yoga: A Case Report

**Poonam Singh**[1]

1- Yoga Instructor, Yog Wellness Center, Sultanpur, Uttarpardesh.

**Article Info**

***Article history:***
Received on: 14-12-2022
Accepted on: 23-01-2023
Available online: 31-01-2023

***Corresponding author-***
Poonam Singh, Yoga Instructor, Yog Wellness Center, Sultanpur, Uttarpardesh

Email: drpoonamsingh134@gmail.com

**ABSTRACT:**

The whole practice of nature cure is based on the following three principles: Accumulation of morbid matter, the abnormal composition of blood & lymph lowered vitality. Nature cure believes that all diseases arise due to the accumulation of morbid matter in the body and if the scope is given for its removal, it provides a cure or relief. It is believed that the human body possesses inherent self-constructing and self-healing powers. The blood pressure and blood sugar significantly reduce and the lipid profile also improves due to the influence of yoga practices and naturopathic management. Lifestyle is an important risk factor for increasing the prevalence of diabetes in the Indian population. In this study, we evaluated the effects of naturopathy treatment, salt-restricted low-calorie diets, and yoga in long-term glycemic control in patients with type 2 diabetes mellitus.

**Keywords:** Hypertension; Dyslipidemia; Diabetes Mellitus; Naturopathy; Yoga.

## INTRODUCTION

Type-2 diabetes mellitus is a state of insulin resistance, which results in elevated blood glucose levels. This tissue insensitivity to insulin is compensated by the pancreas by secreting excessive insulin (hyperinsulinemia), so as to maintain the blood glucose level in the normal range. Insulin resistance has been shown to be an independent risk factor for ischemic heart disease by its synergistic effects with apolipoprotein B.[1] Both hypertension and diabetes predispose to the development of cardiovascular diseases (CVD). When hypertension coexists with diabetes, the risk of CVD is elevated by 75%,[1] which further contributes to the overall morbidity and mortality of an already high-risk population. Hypertension in Type-2 diabetic patients clusters with other CVD risk factors such as microalbuminuria, central obesity, insulin resistance, dyslipidemia, hypercoagulation, increased inflammation, and left ventricular hypertrophy. This clustering of risk factors in diabetic patients ultimately results in the development of CVD, which is the major cause of premature mortality in these patients.[2] The pattern of diabetic dyslipidemic patients with type-2 diabetes presents with a wide variety of lipid patterns. Genetic factors, concomitant diseases, lifestyle, medications and, other factors all affect lipid values. Many Type 2 diabetic patients are characterized by a typical mixed dyslipidemia, thus by hypertriglyceridemia, low HDL-C and, the

predominance of small dense LDL, while total cholesterol may be normal or elevated. LDL-C concentration is often only mildly elevated and is usually not the predominant abnormality. If analyzed in more detail these patients are not only characterized by abnormal fasting lipid levels, but also by an abnormal postprandial lipoprotein metabolism.[3-4] The treatment of dyslipidemia was often neglected, despite convincing evidence linking it to the development of atherosclerosis. The compounding effects of age, obesity, ethanol, antihypertensive drugs, diet and, separately inherited lipid disorders, often aggravate them. In recent years, prevention of microvascular complications of diabetes has been shown to be possible with aggressive treatment of hyperglycemia.[5] In type 2 diabetes an increased cardiovascular risk often exists for many years before the onset of biochemical hyperglycemia. During this period obesity and insulin resistance are often present, associated with hypertension and dyslipidemia, usually referred to as a metabolic syndrome.[6-7]

## CASE DISCUSSION

A 59-year-old male patient visited the Yog Wellness Center, Sultanpur, Uttar Pradesh India presenting a known case of Type-2 Diabetes, hypertension and dyslipidemia for 10 years. **(Figure.1)** The patient was taking allopathic medicine by his allopathic physician and homeopathic medicine also. After allopathic medicine, he was advised for lifestyle modification and medications which he could not recall. No family history of diabetes or hypertension. He had normal sweating and sleep, bowel movement irregular and frequent micturition with no history of smoking and alcohol consumption. Vital Data include a pulse rate of 122, respiratory rate of 24, blood pressure 160/98 mmHg, the height of 170 cm, weight of 86 kg, afebrile and BMI of 29.75 **(Table.1)**.Systemic examinations were normal. Pallor, clubbing, lymphadenopathy, edema, and cyanosis were absent. Skin appearance was normal, and pain in the lumber region. Medical History patient was taking Tab. Amaryl 2mg, Tab. Galvus Met 50 mg/ 500mg, Tab. Telma 40 mg, Tab. Storvas 10 mg, Syp Depura 60000 IU once a month, Softavac powder, Tab. ABOCAL 500 mg. Other parameters associated are depicted in (**Tables 2 and 3)**.

**Treatment Plan**

Conservative management was started with Naturopathy (Hydrotherapy, Mud therapy, Manipulative therapy, Naturopathic pack, Heliotherapy, Traditional Chinese Medicine, Fasting therapy and Diet therapy) and Yoga (Shatkarma, Asana, Pranayam, Bandha, Yognidra, Meditation) Management.

**Treatment Progress**

After 14 days of treatment through Naturopathy and Yoga, he felt good and relaxed. There was a change in blood pressure and other vital parameters **(Table 1)** and relief in fasting blood sugar, post-prandial blood sugar, and random blood sugar and also improvement in hemoglobin A1c (HbA1c) test and increases hemoglobin level **(Table 2).** Lipid profile parameters significantly improved due to proper follow of treatments **(Table 3)**. I asked him to stop allopathic medicines gradually after proper follow of Naturopathy and Yoga management. The patient felt relaxed and happy. On the 14$^{th}$ day, on the basis of assessment criteria the patient was 80% relieved of his symptoms and he was feeling better than before. Follow-up instructions were suggested diet plan preferably two times a day and fasting once in a week. Loosening exercise, asana, and Suryanamaskar practices daily one hour, pranayama and relaxation twice in a day, GH pack, cold hip bath, hot and cold fomentation on the abdomen, mud pack on eye and abdomen, massage on abdomen and the head region once in a day **(Table 4- 8).** The patient was advised to chew well, eat with a peaceful mind, and drink water 4 to 5 liters per day. Expose the body to sunlight and fresh air as far as possible and weekly check-ups on the blood sugar level. The patient was instructed to avoid coffee, tea, oily, fried food, frozen /processed/fast/preserved/ refined edible items, white flour, white sugar, saturated fats/overeating/ untimely eating, late lunch, dinner/ late sleep, intake of water immediately before and after food, stress, anger, worry, hurry, depression, and anxiety etc. **(Figure 2-3)**

## DISCUSSION

Naturopathy is a healing system using the power of nature and it is considered an art, science and philosophy. The concept of holistic health or treating the body as a whole (using tools like water, earth, fire, air and ether) is given prime importance and various drugless complementary medical sciences. Yoga means a holistic approach towards the cause and treatment of disease. According to yoga most of the diseases such as mental, psychosomatic and physical problems originate in mind through wrong way of thinking, living and eating. The basic approach of yoga is to correct the life style by cultivating a rational positive and spiritual attitude towards all life situations.[8] Hydrotherapy helps to improve metabolism and enhances the body's ability to use

glucose and stimulates the functions of abdominal and pelvic organs including pancreas, liver and bladder and also decreases tissue blood flow by causing vasoconstriction, thus reduces tissue metabolism, inflammation and muscle spasm.[9] Mud Therapy synchronizes the balance of the digestive system with the endocrinal organs, which being underutilized in diabetic patients lead to toxins accumulation.[10] The systematic manipulation of soft tissue with the hands positively affects and promotes healing, reduces stress, enhances muscle relaxation, improves local circulation, and creates a sense of well-being.[11] Acupuncture, a popular complementary therapy, was first recorded as traditional Chinese medicine (TCM) 3000 years ago. Based on TCM theory, acupuncture can be used to treat illnesses by stimulating specific acupoints. Several studies have shown that acupuncture has an effect on metabolic and endocrine diseases, such as polycystic ovarian syndrome, thyroid dysfunction, obesity, and T2DM with good safety.[12] Reflexology seems to be effective in helping the body systems return to their natural state. The findings revealed that reflexology therapy is effective in reducing the level of anxiety.[13] Several beneficial nutrients also contribute to the protective effects of these diets, including mono- and polyunsaturated fatty acids, antioxidant vitamins, minerals, phytochemicals, fiber, and amino acids. In diets high in fiber, the glycemic index is low, which helps keep blood sugar levels stable, improve weight loss, and control Type 2 diabetes.[14] When the skin is stimulated with UVA radiation, nitric oxide is released, stimulating vasodilation and lowering blood pressure.[15] The classical ancient texts Hatha Yoga Pradipika and Gheranda Samhita describe purification/cleansing practices known as *shatkarmas.* Of these, the practices of *vaman dhauti* (stomach cleansing with induced vomiting), *Kapalbhati* (frontal brain purification, which is a breathing technique with forceful exhalations and automatic inhalations), and *shankhaprakshalana* (intestinal cleansing) help to increase the production of insulin and to control blood glucose levels. Regular internal cleansing enhances the functional capacity of the organs. A study showed that *vaman dhauti* practice (emetic therapy) caused a marked reduction in fasting and postprandial blood sugar levels.[16] Yogasana develops strength, flexibility, balance and the coordination of the mind, body and breath, in combination with pranayama and meditation exercises to calm the mind and develop self-awareness. Yoga balances autonomic nervous system consists of two limbs; sympathetic nervous system and parasympathetic nervous system. Although individual asana and *pranayam* practices can selectively affect sympathetic or parasympathetic nervous system, the overall effect of yoga practice is to bring a state of parasympathetic dominance.[17]

## CONCLUSION

The Findings of this case report suggest that Naturopathy and Yoga management help to alleviate the symptoms of Type -2 Diabetes Mellitus, Hypertension, and Dyslipidemia.

**Acknowledgments:** None
**Conflict of Interest:** None
**Source of Finance & Support**: None

## ORCID

*Poonam Singh*, https://orcid.org/0000-0003-2917-7152

## REFERENCES

1. Despre´s J, et al. Hyperinsulinemia as an independent risk factor for ischemic heart disease. N Engl J Med 1996; 334: 952–57.
2. Prabodh S. Hypertension and Dyslipidemia in Type 2 Diabetes Mellitus patients of Guntur and Krishna districts in Andhra Pradesh, India, Original Research, ID: NJLM/2012/4380:1937, National Journal of Laboratory Medicine. 2012 June, Vol-1(1): 7-10
3. Parhofer KG, Laubach E, Barrett PH. Effect of atorvastatin on postprandial lipoprotein metabolism in hypertriglyceridemia patients. J. Lipid. Res. 44(6), 1192–1198 (2003).
4. Taskinen MR. Diabetic dyslipidemia: from basic research to clinical practice. Diabetologia 46(6), 733–749 (2003).
5. Sunil Gupta, Anjali kapse. Lipidprofile pattern in Diabetics from Central India. Diabetes Care Centre 2001; 21(3):138 – 145.
6. Haffner SM. Cardiovascular risk factors in confirmed prediabetic individuals. Does the clock for coronary heart disease start ticking before the onset of clinical diabetes? JAMA. 1990; 263:2893–8.
7. Haffner SM, International Diabetes Federation. IDF Diabetes Atlas Ninth Edition *2019.*

**8.** Shenbagavalli A. Effects of Yoga Practices and Naturopathy Treatments on Blood Sugar and Blood Pressure of Diabetic Patients. Journal of Exercise Science and Physiotherapy, Vol. 6, No. 2: 120-125, 2010.

9. Chawla R, Role of naturopathy on physical and biochemical parameters in patients with Type 2 diabetes mellitus, Indian Journal of Traditional Knowledge Vol 18(3), July 2019, pp 430-438.

**10.** Rastogi R, Therapeutic uses of Mud therapy in Naturopathy, IJTK; 11(3) (2012)556-9.

**11.** Cindy C, The Evidence for Massage Therapy (EMT) Working Group, The Impact of Massage Therapy on Function in Pain Populations—A Systematic Review and Meta-Analysis of Randomized Controlled Trials: Part I, Patients Experiencing Pain in the General Population, Integratvive Medicine Section, Oxford. Pain Medicine 2016; 17: 1353–1375.

**12.** Meilu L,. Acupuncture and related techniques for type 2 diabetes mellitus, A systematic review protocol, 2018 December 18, page no. (1-6).

**13.** Nor D, Foot Reflexology Therapy for Non-Specific Low Back Pain Condition: A Protocol For a Randomized Controlled Trial, International Journal of Public Health Research 2018; 8(1): 933-938.

**14.** Zandile J. Diet Therapy and Public Health, Int. J. Environ. Res. Public Health 2022, 19, 8312, page no. 2-7.

**15.** Carole A. Baggerly, BA, Raphael E et al. Sunlight and Vitamin D: Necessary for Public Health, Journal of the American College of Nutrition, Vol. 34, No. 4, 359–365 (2015).

**16.** Arkiath V, Therapeutic Role of Yoga in Type 2 Diabetes. Endocrinology And Metabolism, 2018- 9 May, Page no. 307-317.

**17.** Haskell WL, Lee IM, Pate RR, Powell KE, Blair SN, Franklin BA, Macera CA, Heath GW, Thompson PD, Bauman A: Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. Circulation 116:1081- 1093, 2007.

**How to cite this article:** Singh P "An Integrated Management Of Type-2 Diabetes Mellitus Associated With Hypertension And Dyslipidemia With Naturopathy And Yoga: A Case Report" IRJAY.[online]2023;6(1); 01-09.
Available from: https://irjay.com
DOI link- https://doi.org/10.47223/IRJAY.2023.6101

**Table 1: Vital data Examination parameters Pre- treatment and Post-treatment**

| S.No | Vital data | Pre-treatment | Post-treatment | Normal Value |
|---|---|---|---|---|
| 1. | Pulse rate | 122 beats/minute | 74 beats/ minute | 60-100 beats/minute |
| 2. | Respiratory rate | 24 breaths/minute | 18 breaths/minute | 12-16 breaths/ minute |
| 3. | Blood pressure systolic | 160 mmHg | 138 mmHg | 90-120 mmHg |
| 4. | Blood pressure diastolic | 98 mmHg | 88 mmHg | 60-80 mmHg |
| 5. | Weight | 86 kg | 84.5 kg | 60.3-76.9kg |
| 6. | B.M.I | 29.75 | 29.23 | 18.5-24.9 |

**Table 2: Hematological Parameter Pre-treatment and Post-treatment**

| S.No | Parameters | Pre-treatment | Post-treatment | Normal value |
|---|---|---|---|---|
| 1. | Fasting blood sugar | 128 mg/dl | 118 mg/dl | 70-100 mg/dl |
| 2. | Post- prandial blood sugar | 189 mg/dl | 163 mg/dl | <140 mg/dl |
| 3. | Random blood sugar | 270 mg/dl | 184mg/dl | <140 mg/dl |
| 4. | HbA1c | 7.6% | 6.6% | 4.00-5.60% |
| 5. | Estimated average glucose | 171 mg/dl | 143 mg/dl | 70-126 mg/dl |
| 6. | Haemoglobin | 11.90 g/dl | 13.7g/dl | 13-17 g/dl |

**Table 3: Lipid profile Parameters Pre-treatment and Post-treatment**

| S.No | Parameters | Pre-treatment | Post-treatment | Normal Range |
|---|---|---|---|---|
| 1. | Total Cholesterol | 116 mg/dl | 126 mg/dl | <200 mg/dl |
| 2. | HDL Cholesterol | 33.10 mg/dl | 37 mg/dl | >40 mg/dl |
| 3. | LDL Cholesterol | 70.30 mg/dl | 70.8 mg/dl | <100 mg/dl |
| 4. | Triglycerides | 63 mg/dl | 91 mg/dl | <150 mg/dl |
| 5. | VLDL | 12.60 mg/dl | 18.2 mg/dl | <30 mg/dl |

**Table 4: Naturopathic Management**

| S.No. | Name of treatment | Duration | Frequency |
|---|---|---|---|
| 1. | ***Hydrotherapy ( Jal chikitsa)*** | | |
| | *Neutral Immersion bath* | 10 minutes | 9 times |
| | *Cold hip bath* | 10 minutes | 14 times |
| | *Steam bath with cold chest pack* | 10 minutes | 5 times |
| | *Local steam on abdomen* | 10 minutes | 9 times |
| | *Hot and Cold (3:1) Fomentation on abdomen* | 20 minutes | 14 times |
| | *Neutral enema* | | 4 times |
| 2. | ***Mud therapy (Mitti chikitsa)*** | | |
| | *Mud pack on Abdomen and eyes* | 30 minutes | 14 times |
| | *Full mud bath* | 20 minutes | 4 times |
| 3. | ***Manipulative therapy (Malish chikitsa)*** | | |
| | *Local massage on abdomen and head* | 20 minutes | 9 times |
| | *Full body massage* | 45 minutes | 5 times |
| 4. | ***Naturopathy Packs (Prakritic packs)*** | | |

| | | | |
|---|---|---|---|
| | *Gatro-hepatic pack (GH pack)* | 30 minutes | 7 times |
| | *Cold Cotton and woollen abdominal pack* | 30 minutes | 7 times |
| 5. | ***Heliotherapy (Surya chikitsa)*** | 20 minutes | 7 times |
| | *Supine Series* | 10 minutes | |
| | *Prone Series* | 10 minutes | |

**Table 5: Naturopathic Management Continued:**

| S.No. | Name of treatment | Points upon the body | Duration | Frequency |
|---|---|---|---|---|
| 6. | ***Acupuncture*** | *Acupuncture points- ST-36, ST-40, ST-42,Sp-3,SP- 6, SP-9, KI-3, GB-34, LI-4, LI-11,Du-20,U.B.-18, U.B.-23, Liv-2, K-3.* | 20 minutes | 7 times |
| 7. | ***Reflexology*** | *Reflexology upon Foots* | 10 minutes | 14 times |

**Table 6: Naturopathic Management Continued:**

| S.No. | Name of treatment | Name of Ingredients | Frequency |
|---|---|---|---|
| 8. | ***Fasting therapy*** | | 2 days |
| | 8:00 am | Apple (250 grams) | Once in a week |
| | 12:00 pm | Pears (250 grams) | |
| | 4:00 pm | Pine apple and Sweet lime (250 grams) | |
| | 8:00 pm | Papaya or Pears (250 grams) | |
| 9. | ***Diet therapy*** | | 12 days |
| | 7:00 am | Fenugreek kadha *(Methi kadha)* / Giloy Kadha/ Arjun kadha | |
| | 8:00 am | Sprouted green gram and fenugreek, 4-5 almond, 7-8 black raisins, 2-3 walnut, 3-4 cashew and one seasonal citrus fruits. | |
| | 10:00 am | Better guard juice/ Apple + Beetroot +Carrot juice/ bottle guard juice / Alovera juice | |
| | 1:00 pm | Multigrain chapati -2, Steam green vegetable, Green chutney | |
| | 3 :00 pm | Any seasonal citrus fruits (Papaya/ Apple/ Orange/Pomegranate /Grapes), Tender Coconut water or Lemon honey water. | |
| | 5 :00 pm | Beetroot soup/ Tomatoes soup/ Drumstick soup | |
| | 7 :00 pm | Multigrain chapati 1 or 2 with steam green vegetable or Green vegetable oats daliya one medium bowl. | |
| | 9:00 pm | Harsingaar kadha | |

**Table 7: Yogic Management:**

| S.No. | ***Shatkriyas (Yogic Cleansing Technique)*** | Frequency |
|---|---|---|
| 1. | *Triphala water eyewash* | 14 time |
| 2. | *Jal neti* | 7 times |
| 3. | *Vamandhauti* | 7 times |
| 4. | *Agnisaar kriya* | 7 times |
| 5. | *Nauli kriya* | 7 times |
| 6. | *Laghushankh Prakshalan* | 1 times |

**Table 8: Asana, Pranayam, Bandha, Yognidra and Meditation Practices:**

| S.No. | Name of practices | | Duration |
|---|---|---|---|
| 1. | ***Pawanmuktasana part-1*** | *Loosening exercises (Sukshma vyayama)* | 10 minutes |
| 2. | ***12 poses of Surya namskar*** | | 10 minutes |
| | | *Pranamasana* | |
| | | *Hasta uttanasana* | |
| | | *Hasta padasana* | |
| | | *Ashwa sanchalanasana* | |
| | | *Parvatasana* | |
| | | *Ashtanga namskara* | |
| | | *Bhujangasana* | |
| 3. | ***Asana practices*** | | 10 minutes |
| | | *Tadasana* | |
| | | *Ardhkatichakrasana* | |
| | | *Katichkrasana* | |
| | | *Vajrasana* | |
| | | *Uttanmandukasana* | |
| | | *Mandukasana* | |
| | | *Ustrasana* | |
| | | *Gomukhasana* | |
| | | *Ardhmatsyendrasana* | |
| | | *Ardha salabhasna* | |
| | | *Dhanurasana* | |
| | | *Sarpasana* | |
| | | *Bhujangasana* | |
| | | *Makrasana* | |
| | | *Uttanpadasana* | |
| | | *Ardhpawanmuktasana* | |
| | | *Udarakarsan* | |
| | | *Markatasana* | |
| | | *Savasana* | |
| 4. | ***Pranayam practices*** | | 10 minutes |
| | | *Anulom- Vilom* | |
| | | *Chandrabhedan pranayam* | |
| | | *Sheetli pranayam* | |
| | | *Sheetkari pranayam* | |
| | | *Bhramari pranayam* | |
| 5. | ***Bandha practices*** | *Uddiyan bandha* | 2 minutes |
| 6. | ***Yognidra*** | | 15 minutes |
| 7. | ***Meditation*** | | 3 minutes |
| | | *OM Kara meditation* | |
| | | *Mahamritunjay jap* | |

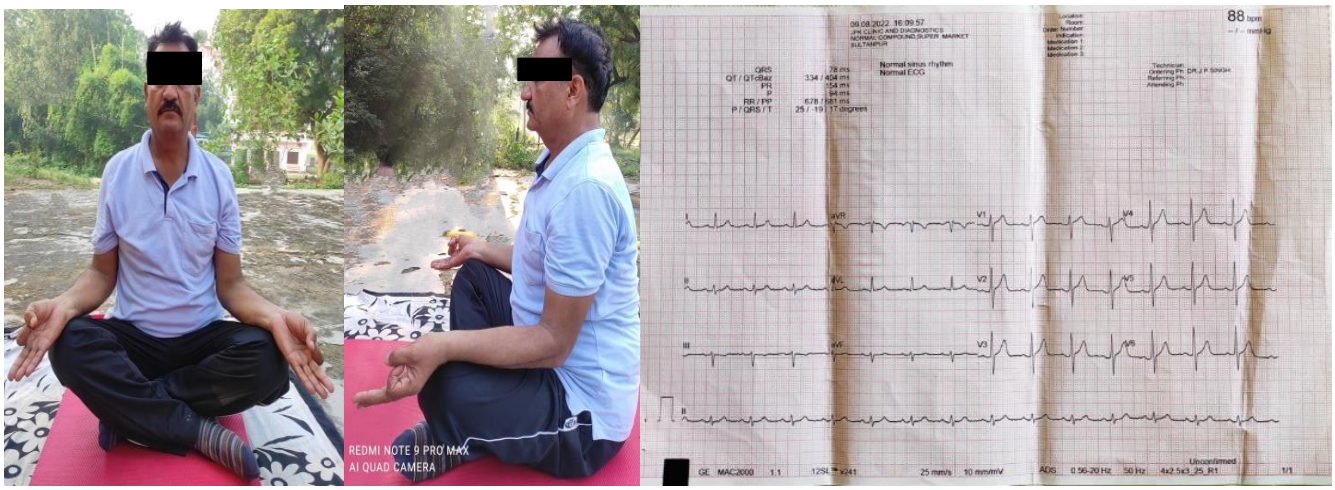



**Figure1:** Photographs of the Patient

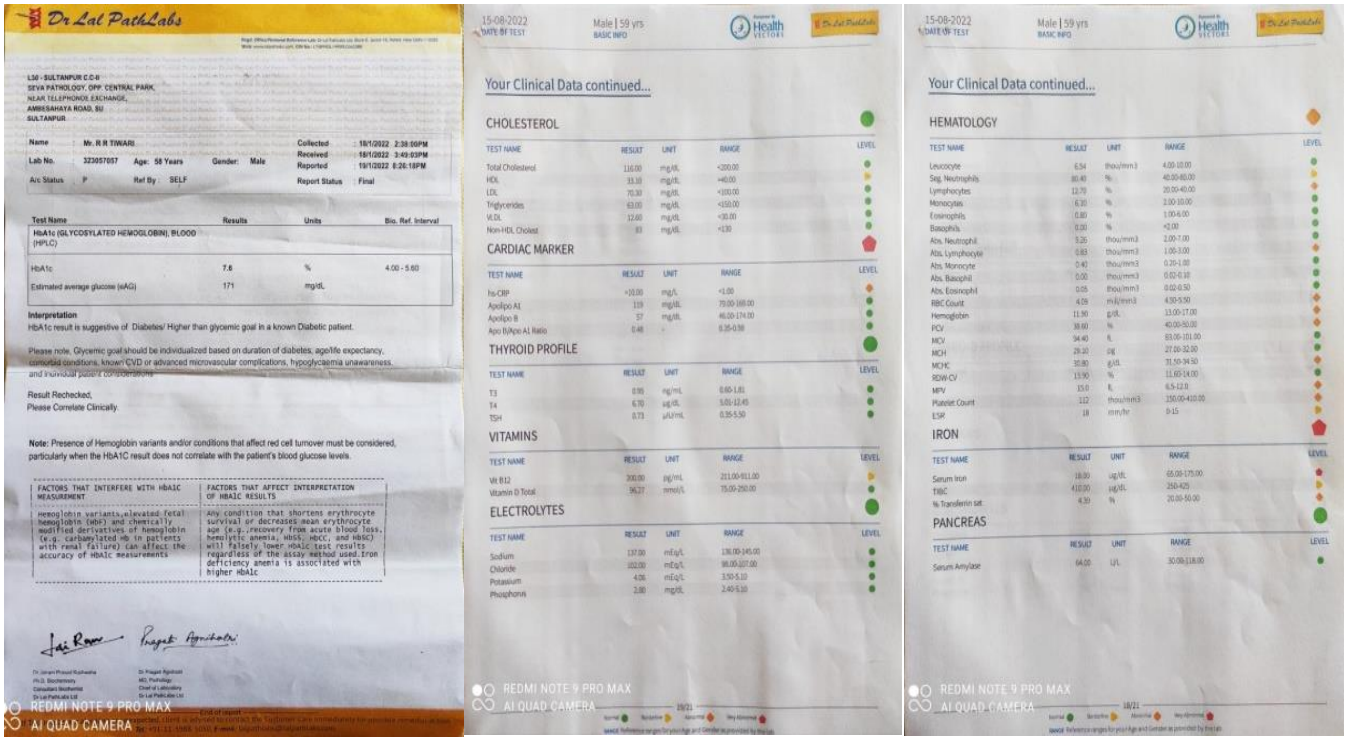
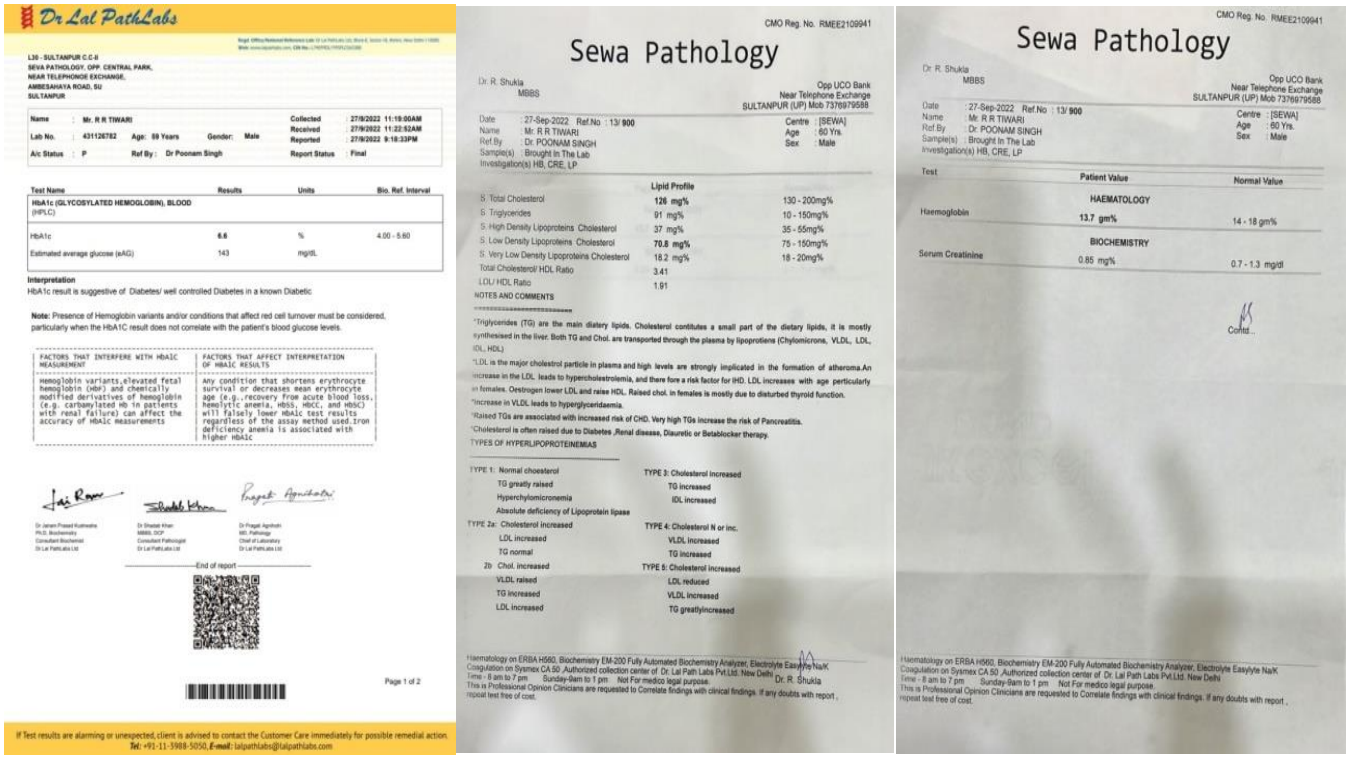



**Figure 2:** Pretreatment investigations



Dr Lal PathLabs

L30 - SULTANPUR C.C-II
SEVA PATHOLOGY, OPP. CENTRAL PARK,
NEAR TELEPHONOE EXCHANGE,
AMBEDAHAYA ROAD, SU
SULTANPUR

Name : Mr. R R TIWARI
Lab No. : 431126782 Age: 59 Years Gender: Male
A/c Status : P Ref By : Dr Poonam Singh
Collected : 27/9/2022 11:19:00AM
Received : 27/9/2022 11:22:52AM
Reported : 27/9/2022 9:18:33PM
Report Status : Final

| Test Name | Results | Units | Bio. Ref. Interval |
|---|---|---|---|
| HbA1c (GLYCOSYLATED HEMOGLOBIN), BLOOD (HPLC) | | | |
| HbA1c | 6.6 | % | 4.00 - 5.60 |
| Estimated average glucose (eAG) | 143 | mg/dL | |

Interpretation
HbA1c result is suggestive of Diabetes/ well controlled Diabetes in a known Diabetic

Note: Presence of Hemoglobin variants and/or conditions that affect red cell turnover must be considered, particularly when the HbA1C result does not correlate with the patient's blood glucose levels.

| FACTORS THAT INTERFERE WITH HbA1C MEASUREMENT | FACTORS THAT AFFECT INTERPRETATION OF HbA1C RESULTS |
|---|---|
| Hemoglobin variants,elevated fetal hemoglobin (HbF) and chemically modified derivatives of hemoglobin (e.g. carbamylated Hb in patients with renal failure) can affect the accuracy of HbA1c measurements | Any condition that shortens erythrocyte survival or decreases mean erythrocyte age (e.g.,recovery from acute blood loss, hemolytic anemia, HbSS, HbCC, and HbSC) will falsely lower HbA1c test results regardless of the assay method used.Iron deficiency anemia is associated with higher HbA1C |

Dr Jairam Prasad Kushwaha, Ph.D. Biochemistry, Consultant Biochemist, Dr Lal PathLabs Ltd
Dr Shadab Khan, MBBS, DCP, Consultant Pathologist, Dr Lal PathLabs Ltd
Dr Pragati Agnihotri, MD, Pathology, Chief of Laboratory, Dr Lal PathLabs Ltd

End of report

Page 1 of 2

If Test results are alarming or unexpected, client is advised to contact the Customer Care immediately for possible remedial action.
Tel: +91-11-3988-5050, E-mail: lalpathlabs@lalpathlabs.com

CMO Reg. No. RMEE2109941

Sewa Pathology

Dr. R. Shukla
MBBS

Opp UCO Bank
Near Telephone Exchange
SULTANPUR (UP) Mob 7376979588

Date : 27-Sep-2022 Ref.No : 13/ 900
Name : Mr. R R TIWARI
Ref.By : Dr. POONAM SINGH
Sample(s) : Brought In The Lab
Investigation(s) HB, CRE, LP

Centre : [SEWA]
Age : 60 Yrs.
Sex : Male

| Lipid Profile | | |
|---|---|---|
| S. Total Cholesterol | 126 mg% | 130 - 200mg% |
| S. Triglycerides | 91 mg% | 10 - 150mg% |
| S. High Density Lipoproteins Cholesterol | 37 mg% | 35 - 55mg% |
| S. Low Density Lipoproteins Cholesterol | 70.8 mg% | 75 - 150mg% |
| S. Very Low Density Lipoproteins Cholesterol | 18.2 mg% | 18 - 20mg% |
| Total Cholesterol/ HDL Ratio | 3.41 | |
| LDL/ HDL Ratio | 1.91 | |

NOTES AND COMMENTS

*Triglycerides (TG) are the main dietary lipids. Cholesterol contitutes a small part of the dietary lipids. It is mostly synthesised in the liver. Both TG and Chol. are transported through the plasma by lipoprotiens (Chylomicrons, VLDL, LDL, IDL, HDL)
*LDL is the major cholestrol particle in plasma and high levels are strongly implicated in the formation of atheroma.An increase in the LDL leads to hypercholesetroiemia, and there fore a risk factor for IHD. LDL increases with age particularly in females. Oestrogen lower LDL and raise HDL. Raised chol. in females is mostly due to disturbed thyroid function.
*Increase in VLDL leads to hyperglyceridaemia.
*Raised TGs are associated with increased risk of CHD. Very high TGs increase the risk of Pancreatitis.
*Cholesterol is often raised due to Diabetes ,Renal disease, Diauretic or Betablocker therapy.

TYPES OF HYPERLIPOPROTEINEMIAS

TYPE 1: Normal choesterol
TG greatly raised
Hyperchylomicronemia
Absolute deficiency of Lipoprotein lipase

TYPE 2a: Cholesterol increased
LDL increased
TG normal

2b Chol. increased
VLDL raised
TG increased
LDL increased

TYPE 3: Cholesterol increased
TG increased
IDL increased

TYPE 4: Cholesterol N or inc.
VLDL increased
TG increased

TYPE 5: Cholesterol increased
LDL reduced
VLDL increased
TG greatlyincreased

Haematology on ERBA H560, Biochemistry EM-200 Fully Automated Biochemistry Analyzer, Electrolyte Easylyte Na/K Coagulation on Sysmex CA 50 ,Authorized collection center of Dr. Lal Path Labs Pvt.Ltd. New Delhi
Time - 8 am to 7 pm Sunday-9am to 1 pm Not For medico legal purpose.
This is Professional Opinion Clinicians are requested to Correlate findings with clinical findings. If any doubts with report , repeat test free of cost.

Dr. R. Shukla

CMO Reg. No. RMEE2109941

Sewa Pathology

Dr. R. Shukla
MBBS

Opp UCO Bank
Near Telephone Exchange
SULTANPUR (UP) Mob 7376979588

Date : 27-Sep-2022 Ref.No : 13/ 900
Name : Mr. R R TIWARI
Ref.By : Dr. POONAM SINGH
Sample(s) : Brought In The Lab
Investigation(s) HB, CRE, LP

Centre : [SEWA]
Age : 60 Yrs.
Sex : Male

| Test | Patient Value | Normal Value |
|---|---|---|
| | HAEMATOLOGY | |
| Haemoglobin | 13.7 gm% | 14 - 18 gm% |
| | BIOCHEMISTRY | |
| Serum Creatinine | 0.85 mg% | 0.7 - 1.3 mg/dl |

Contd...

Haematology on ERBA H560, Biochemistry EM-200 Fully Automated Biochemistry Analyzer, Electrolyte Easylyte Na/K Coagulation on Sysmex CA 50 ,Authorized collection center of Dr. Lal Path Labs Pvt.Ltd. New Delhi
Time - 8 am to 7 pm Sunday-9am to 1 pm Not For medico legal purpose.
This is Professional Opinion Clinicians are requested to Correlate findings with clinical findings. If any doubts with report , repeat test free of cost.

**Figure 3:** Post-treatment investigations