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## Case Study Diabetes Mellitus

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### ABSTRACT

*Diabetes mellitus is a group of metabolic disorders that leads to High blood glucose levels, resulting in excessive urination, increased thirst, blurred vision, tingling, sweating, loss of weight, general weakness, and many other symptoms. Acute conditions include diabetic ketoacidosis and nonketotic hyperosmolar coma, while long-term conditions result in stroke, kidney failure, and cardiovascular disease.*

**Keywords:** Diabetes, Cardiovascular Disease, Diabetes Mellitus

### BACKGROUND

Diabetes mellitus is a metabolic disturbance characterized by hyperglycemia and relative lack, or complete absence of insulin<sup>1</sup>. It is disease which by virtue of its complications may affect all organ systems in the body.

Prevention, timely diagnosis and treatment of important in patients with diabetes mellitus. Many of the complications associated with diabetes, such as nephropathy, retinopathy, neuropathy, cardiovascular disease, stroke, and death, can be delayed prevent with appropriate treatment of elevated blood pressure, lipids and blood glucose<sup>2,3</sup>.

Types of Diabetes Mellitus:

#### Type 1 Diabetes:

The body's immune system mistakenly attacks and destroys insulin-producing cells in the pancreas, resulting in little or no insulin production.

#### Type 2 Diabetes:

The body becomes resistant to insulin, and the pancreas may not produce enough insulin to maintain normal blood sugar levels.

#### Gestational Diabetes:

This type develops during pregnancy, often disappearing after childbirth, but it can increase the risk of developing type 2 diabetes later in life.

#### Maturity-Onset Diabetes of the Young (MODY):

A genetic form of diabetes characterized by early onset and often manageable with oral medications.

Symptoms of Diabetes:

- Increased thirst and frequent urination.
- Unexplained weight loss.
- Blurry vision.
- Fatigue and weakness.
- Slow-healing sores.
- Numbness or tingling in the hands or feet.

Complications of Diabetes:

**Cardiovascular disease:** Increased risk of heart attack, stroke, and peripheral artery disease.

**Neuropathy:** Nerve damage, particularly in the extremities, leading to pain, numbness, and tingling.

**Nephropathy:** Kidney damage, potentially leading to kidney failure.

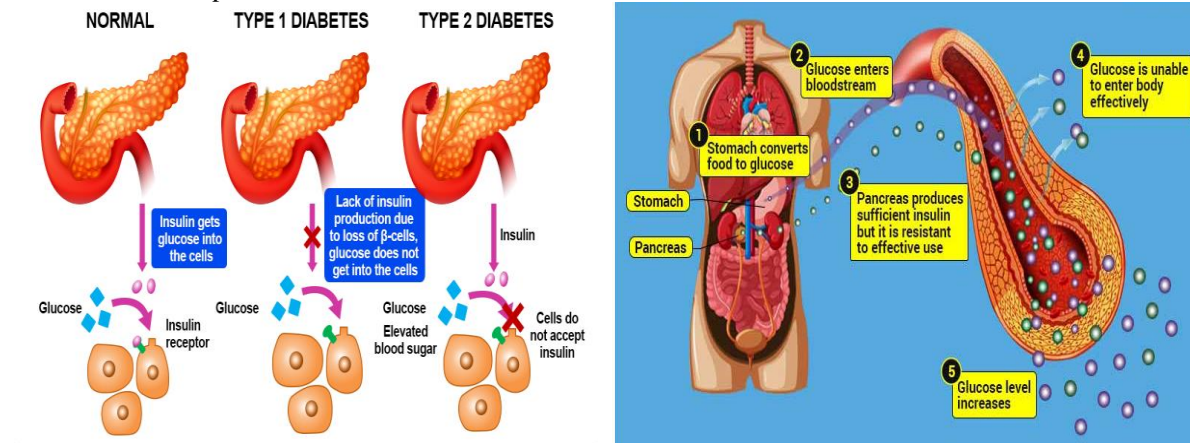
**Retinopathy:** Eye damage, which can lead to vision loss.

**Foot problems:** Increased risk of infections, ulcers, and amputations.

A body usually is able to keep glucose concentration stable. The normal fasting blood sugar is usually between 3.5-6.7mmol/L.

After a meal it would rarely exceed 8mmol/L. Normally there is no glucose in urine since the normal threshold above which glucose would appear in urine would be 10mmol/L. Below a concentration of 10mmol/L, the kidneys reabsorb glucose back into the blood stream and glucose does not appear in the urine unless the blood concentration of glucose is high<sup>4</sup>.

When the amount of glucose in the blood increases, e.g., after a meal, it triggers the release of the hormone insulin from the pancreas. For many years, scientists have been searching for clues in our genetic makeup that may explain why some people are more likely to get diabetes than others are. "The Genetic Landscape of Diabetes" introduces some of the genes that have been suggested to play a role in the development of diabetes.



## CASE PRESENTATION

Mrs. Sampat Pareek 76 Year Female come to Medicine OPD with complain of shortness of breath, Dyspnoea on exertion, weakness, frequent urination, loss of weight more than 10% in last 2 months, difficulty in walking & doing regular physical activity last 6 months and blackish coloured stool passed since 4 to 5 days & Patient was known case of CAD/ AKI/ DM Type II/ Oesophageal varices? Pulmonary Hypertension/ Primary Hypothyroidism/ HTN on regular medications.

### Past Medical History:

Patient was not suffering from CAD, Pulmonary HTN, Hypothyroidism last 6 year.

### Past Medication History:

Patient on hypothyroid medication, on pulmonary hypertensive medicine and diabetes medicine.

### General Examination:

Weight: 66.5kg

Height: 163 cm

BMI: 25

Physical activity: daily house work and walk till temple ( Approx. 2-3 km )

### Special investigation:

According to reported symptoms, patient's blood glucose level was monitored. At the time patients random blood glucose level was 386 mg/dl which was beyond the normal range of the random blood glucose level (>140mg/dl). Patients was also said to monitor his fasting glucose level that 270 mg/dl which was also beyond the normal range (70-100mg/dl). **HbA1c range 13.0%** Dr was suggested to blood and routine urine Check-up, and also liver function test and Electro cardio gram. & further diagnosed as Upper GI Bleed & Patient seen by Gastroenterologist & plan for Upper GI Endoscopy to rule out cause of bleeding with regular sugar monitoring three times a day. Upper GI endoscopy was done s/o oesophageal varices bleeding continuously for that immediately EVL banding applied under all aseptic precautions & also patient was managed with 3 units of blood transfusion

### Treatment:

One month treatment Tab Glimepiride 2 mg+ Metformin 500mg BID, Tab Vildagliptin 50mg once in day, Tab Pregabalin 75mg+ Nortriptyline 10mg once in days, Cap Methyl cobalamin 1500mcg once in day, Inj Methyl cobalamin I.M once a week. oesophageal varices bleeding continuously for that immediately EVL banding applied under all aseptic precautions & also patient was managed with 3 units of blood transfusion & conservative medical management with IV antibiotics, IV Iron Therapy with IV Analgesics & supportive treatment given. All criticalness & prognosis fully explained to relatives. Regular opinion of Gastroenterologist taken & thoroughly reviewed the patient. Gradually patient responded to the given management & discharged in stable condition after 4 days with advised medications.

### Intervention:

Drug should be taken about 5-10 minutes before the meal Instead of eating a lot at 3 meals, divide total intake in 5 meals. Drug interactions was checked, no interaction was present b/w all drugs patient advised to check her HbA1C level after about every 3rd month.

#### Care plan:

Proper diet -----low suger intake  
Exercise and walk to reduce body weight  
High fiber diet less intake of fast and carbohydrates

#### Outcome:

Patient used the suggested medicine after using medicine One month treatment Tab Glimepiride 2mg+ Metformin 500mg BID, Tab Vildagliptin 50mg once in day, Tab Pregabalin 75mg+ Nortriptyline 10mg once in days, Cap Methyl cobalamin 1500mcg once in day, Inj Methyl cobalamin I.M once a week the blood glucose level of the patient was monitored after one month

Fasting = 346mg/dl  
After meal = 540 mg/dl

After next follow up check-up Dr. Abhay Singh Deora suggested to Mrs. Sampat Pareek to taken a insulin 14 unit once in day.

Patient was advised to visit hospital if he suffers any side effect in future or, if his symptoms not properly treated.

#### Complication or adverse effect:

Lots of complication and adverse effect are observed first is weight gain, sweating, feet burning tingling sensation in feet

### DISCUSSION

Patient suffering form diabetes due to many reasons included less production of the insulin by beta cells of the pancreas or resistance of body against insulin, a major reason of Diabetes is genetics, majority of diabetic patient suffering from type 2 diabetes due to there genetics and family history. If this condition is not properly treated or is for long term it results in cardiovascular disease, shock, permanent damage eye and chronic kidney disease. Diabetic patient should properly manage his daily dietary intake because if patient is taking oral hypoglycemic agents as medication and not taking diet according to body need then he may suffer from hypoglycemic State that can be more dangerous than the hyperglycemia. Small meals should be taken 4 to 5 time in a day instead of eating a lot at single time. Insulin or other hypoglycemic agents should always be taken before 10 minutes of taking meals, because medicine or external source of insulin Will trigger the beta cells of the body to produce insulin inside the body the body according to need of body. Diabetic condition can also be treated by non- pharmacological method as by doing exercise, by stopping intake of High sugar content food.

### CONCLUSION

It's a Case of 76-year-old female having Diabetes Mellitus & Hypertension and upper GI Bleeding since last 4 days reported in OPD Department with. Multidisciplinary team approach taken care. Upper GI Endoscopy and Blood Transfusion done. for Diabetic Management special diet prescribed and daily activity scheduled explained.

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#### CONFLICTS OF INTEREST

None of the authors disclose any conflicts of interest, either real or perceived.

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