



# DIABETES

## Case Studies

## Case-I

- **History:** A 55 year old lady, presents with excessive thirst since 4 days. She has bilateral knee pain. She has no other symptoms.
- **Examination:** Height is 156 cm and the weight is 80 kg. Examination indicates a blood pressure of 120/80 mmHg. Heart rate is 80 /min. There are no other significant findings.
- **Tests:** Fasting Plasma Glucose (FBG) - 142 mg/dl, Post-prandial plasma glucose (PPPG) – 258 mg/dl, HbA1c - 8.1 %

## **Diagnosis & Management**

**Diagnosis:** Type 2 Diabetes with Obesity (BMI: 32.87)

### **Management**

- Diabetes awareness
- Diet control- reduce refined carbohydrate intake, reduce oil intake, consume at least two servings of vegetables per day
- Physical Activity
- Walking 30 minutes per day for 5 days or equivalent
- Yoga / resistance exercises 2 days/ week
- Tab Metformin 500mg twice daily
- Screening for diabetes related complications

## **Explanation**

- Recently diagnosed diabetes and obesity
- Diet and exercise to reduce weight would be the first step.
- Metformin therapy is indicated to control blood glucose level
- As diabetes is often diagnosed after a delay, routine screening for both microvascular complications and cardiovascular complications should be started at the time of diagnosis itself.

## Case-2

- **History:** A 45 year old gentleman comes for diabetes management. He is hypertensive and on ramipril 5 mg once a day, and is taking atorvastatin 10 mg at bedtime. He is taking Metformin 500 mg in the evenings and glimepiride 1 mg in the morning. He smokes a packet of cigarettes a day.
- **Examination:** The height is 156 cm and the weight is 79 kg. Examination indicated a blood pressure of 130/90 mm Hg. Heart rate is 70 /min. There were no other significant findings.
- **Tests:**FPG – 180 mg/dl & PPPG- 340 mg/dl

## Diagnosis & Management

**Diagnosis:** Type 2 Diabetes with Obesity (BMI-32.46)

### **Management**

- Stop Smoking
- Counselling, information about hypoglycaemia
- Diet control- reduce refined carbohydrate intake, reduce oil intake, consume at least two servings of vegetables per day
- Physical Activity- Walking 30 minutes per day for 5 days or equivalent
- Yoga / resistance exercises 2 days/ week
- *Tablet Metformin 500 mg twice a day*
- *Tab Glimepiride 2 mg/day*
- Screening for diabetes related complications
- **Specialist Referral**

## **Explanation**

- This gentleman already has diabetes
- On glimepiride and metformin. As the dose of glimepiride 1 mg is not able to control his blood glucose levels, the dose has been increased to 2 mg

## Case-3

- **History:** A 59 year old male clerk comes for diabetes assessment. He walks 30 minutes per day and consumes a health vegetarian diet. He does not smoke or take alcohol. He is taking metformin 1000 mg twice a day.
- **Examination:** The height is 166 cm and the weight is 84 kg (BMI: 30.48). Examination indicates a blood pressure of 130/90 mm Hg. Heart rate is 79 /min. There are no other significant findings.
- **Tests:** FPG -145 mg/dl & PPPG- 271 mg/dl

## Diagnosis & Management

**Diagnosis:** Uncontrolled Type 2 Diabetes

### **Management**

- Counselling, information about hypoglycaemia
- Diet control- reduce refined carbohydrate intake, reduce oil intake, consume at least two servings of vegetables per day
- Physical Activity- Walking 30 minutes per day for 5 days or equivalent
- Yoga / resistance exercises 2 days/ week
- *Tablet Metformin 500 mg twice a day*
- *Tab Gliclazide MR 30 mg/day*
- Screening for diabetes related complications
- **Specialist Referral**

## **Explanation**

- This person has uncontrolled type 2 diabetes.
- Metformin is not optimally controlling the blood glucose levels. Hence, a sulfonylurea has been started.

## Case-4

- **History:** A 19 year old man comes with fever and a reddish discoloration of the right foot since 15 days. He is taking pre-mixed insulin twice a day, since diabetes was diagnosed 10 years ago. He has been feeling breathless since past 2 days.
- **Examination:** The weight is 69 kg. Examination indicates a blood pressure of 120/70 mm Hg. Heart rate is 70 /min. There are no other significant findings. Lower limb pulses are well felt. His ankle jerks are sluggish. There is reddishness over the dorsum of the foot with also a small ulcerated area. Redness appears till the ankle.
- **Tests:** FPG 299 mg/dl & PPPG 344 mg/dl

# Diagnosis & Management

## Diagnosis

- Type 1 diabetes
- Complicated diabetic foot infection

## Management

- **Urgent referral** to specialist centre. Consider giving first dose of intravenous antibiotic prior to referral.

## Explanation

- This is a patient with a complicated, life threatening diabetic foot ulcer with breathlessness due to probably acute respiratory distress syndrome
- The patient requires admission at a higher centre, intravenous antibiotics
- All type 1 diabetes subjects need to be referred to higher centre
- This particular patient with type 1 diabetes was taking pre-mix insulin prior to presentation. Premix insulin is, in general, not suitable for type 1 diabetes- who need to be managed with basal (long acting insulin) and bolus injections (3-4 meal time short acting insulin) for proper control

## Case-5

- **History:** A 60 year old lady presents with diabetes of 5 years duration. She is on gliclazide modified release (MR) 60 mg once a day. She is also on metformin 1000 mg twice a day. She has lost two kg in the last 2 months. She also has severe polyuria, and polydipsia.
- **Examination:** The height is 150 cm and the weight is 60 kg. Examination indicates a blood pressure of 130/90 mm hg. Heart rate is 89 /min. There are no other significant findings.
- **Tests:** FBG – 201 mg/dl & PPBG- 263 mg/dl,  
HbA1c -9.2%

## Diagnosis & Management

**Diagnosis-** Type 2 diabetes (uncontrolled)

### **Management**

- Diabetes awareness, information about hypoglycaemia, diet control- reduce refined carbohydrate intake, reduce oil intake, consume at least two servings of vegetables per day
- Physical Activity-Walking 30 minutes per day for 5 days or equivalent, Yoga / resistance exercises 2 days/ week
- *Tablet Metformin 1000 mg twice a day*
- *Tab Gliclazide MR 60 mg/day*
- *Inj. Glargine or NPH insulin 10units at bedtime*
- Screening for diabetes related complications
- **Specialist Referral**

## **Explanation**

This lady with diabetes, uncontrolled blood glucose levels and osmotic symptoms requires insulin. Basal insulin or premix (30/70) insulin may be used. Basal insulin is an ideal option, and the starting dose is 10 units of glargine or NPH insulin at bedtime. If premix insulin is used, gliclazide may be stopped and metformin continued, and dose of premix insulin could be 0.5 units/kg/day. In this lady of 60 kg, the starting dose of premix insulin would be  $60 \times 0.5 = 30$  units per day (20 units before breakfast and 20 units before dinner). If basal or premix insulin or other complicated regimens are considered, then the patient is best referred to another centre. Newer drugs called gliptins and other medicines that bring down glucose by increasing urinary excretion are available, but they are expensive, and need to be prescribed at a specialist level currently.

## Case-6

- **History:** A 75 year old gentleman, presents with recurrent episodes of giddiness since 2 days. He has diabetes being treated with tablet glibenclamide 2.5 mg once a day for diabetes, diagnosed ten days ago. At that time, the fasting blood glucose was 148 mg/dl and the post breakfast value was 202 mg/dl.
- **Examination:** indicates a blood pressure of 130/80 mmHg. Heart rate is 102 /min. There are no other significant findings.
- **Tests:** Random Plasma Glucose (FBG) - 59 mg/dl

## **Diagnosis & Management**

**Diagnosis:** Type 2 Diabetes with drug induced hypoglycaemia

### **Management**

He was given 4 teaspoons of glucose dissolved in water. After fifteen minutes the blood glucose was still 58 mg/dl. He was given intravenous 50% dextrose (50 ml) and then placed on a 5% dextrose drip for the next 24 hours. He was asked to stop glibenclamide and come for follow up every day. When his fasting blood glucose rose to 130 mg/dl, he was prescribed diet control and physical activity. After one month, his blood glucose levels were well controlled on this, with fasting blood glucose of 102 mg/dl and a post-meal value of 167 mg/dl.

## Explanation

- Episode of hypoglycaemia
- Glibenclamide is particularly liable to cause hypoglycaemia in the elderly
- Hypoglycaemia can last for 72 hours or more, so careful follow up is important
- Prompt referral to specialist is advisable unless in mild cases (like the example above)
- Specific preventive advice is important: (a) do not skip meals and take tablets even during illness (b) Always take 15-40g carbohydrate if the patient develops hypoglycemic symptoms (c) eat regular meals (d) during severe illness, monitor blood glucose constantly (e) consult the doctor if there is vomiting or reduced intake for any reason for more than 12 hours, or if hypoglycemic symptoms do not disappear with oral glucose.



**THANK  
YOU**