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# Diploma in Pharmacy 2nd Year
# Pharmacotherapeutics
## Experiment

**To Prepare and Discuss notes on Subjective, Objective, Assessment and Plan for Diabetes Mellitus ( real / hypothetical )**

## Aim:

To Prepare and Discuss notes on Subjective, Objective, Assessment and Plan for Diabetes Mellitus ( real / hypothetical )

## Reference :

‘ Dr. Gupta G.D. , Dr. Sharma Shailesh, Dr. Sharma Rahul Kumar, “Practical Manual of Pharmacotherapeutics” Published by Nirali Prakashan, Page no 31 - 34

## Theory :

## 1.Diabetes Mellitus

### i) Case I

#### a. Subjective:

- **Name:** XYZ
- **Age:** 54 yrs
- **Sex:** Female
- **Unit:** MED II
- **DOA:** 15/09/2011
- **Reason for Admission:** Experiencing these conditions from last one month, excessive urination, sudden weight loss, blurred vision, increased thirst, fatigue and excessive sweating
- **Past Medical History:** Patient was also suffering from Hypertension from last 3 years.

- **Past Medication History:** She was using Tenormin (Atenolol) 50mg OD from last 3 year.
- **Family History:** NA
- **Allergies and Social History**: Nil

## b. Objective:

- **Height:** 5'2"
- **Weight:** 70 Kg
- **BP:** 120/90 mmHg
- **PR:** 87 bpm
- **CVS:** Normal ECG
- **RS:** 21
- **Temperature:** 38.3°C
- **Physical Activity:** daily work routine home

## c. Assessment Glucose Level Test:

According to the reported symptoms, patient's blood glucose level was monitored. At that time patient's random blood glucose level was 196mg/dl which was beyond the normal range of the random blood glucose level (>140mg/dl). Patient was also said to monitor her fasting glucose level that was 134mg/dl which was also beyond the normal range (70-100mg/dl).

- **Random Blood Glucose = 196mg/dl (Range: >140mg/dl)**
- **Fasting Blood Glucose = 134mg/dl (Range: 70-100mg/dl)**

## d. Plan: Management:

- **Treatment:** Neodipar-250mg BD (Neodipar is brand and its salt is Metformin HCL)
- **Interventions:**
  - 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 interaction was checked, no interaction was present b/w Atenolol and Metformin
- Suggest patient to check HbA1C Level after about every 3rd month.

- **Care Plan:**
  - Proper diet, i.e., low sugar intake
  - Exercise and walk to reduce body weight.
  - High fiber diet less intake of fats and carbohydrates.

## ii) Case II

### a) Subjective:

- **Name:** ABC
- **Age:** 58 yrs
- **Sex:** Female
- **Unit:** MED III
- **DOA:** 10/09/2012
- **Reason for Admission:** Patient reported polyuria
- **Past Medical History:** Acne and low back pain
- **Past Medication History:** She was using metformin
- **Family History:** Both of her grandmothers had type 2 diabetes mellitus. Her father had hypertension, was overweight, and had received a diagnosis of type 2 diabetes at 50 years of age. Her mother was not overweight and had received a diagnosis of type 2 diabetes at 48 years of age.
- **Allergies and Social History:** Nil

### b) Objective:

- **Height:** 165.1 cm
- **BP:** 126/76 mmHg

- **CVS:** Normal ECG
- **Weight:** 72.6 kg
- **PR:** 76 bpm
- **RS**: 23
- **Temperature:** 38.3°C

**c) Assessment:**

- **Oral Glucose Tolerance Test:** Fast overnight and then drink a sugary liquid at the doctor's office. Blood sugar levels are tested periodically for the next two hours Results are interpreted as follows
  - 320 mg/dL when observed after two hours.
- **Laboratory Finding:** Results of laboratory tests are as follows:
  - **Glucose (Fasting):** 175 mg/dl (normal range: 65-109 mg/dl)
  - **Creatinine:** 1.2 mg/dl (normal range: 0.5-1.4 mg/dl)
  - **Blood Urea Nitrogen:** 20 mg/dl (normal range: 7-30 mg/dl)
  - **Sodium:** 142 mg/dl (normal range 135-146 mg/dl)
  - **Potassium:** 4.8 mg/dl (normal range: 3.5-5.3 mg/dl)
- **Lipid Panel:**
  - **Total Cholesterol:** 172 mg/dl (normal <200 mg/dl)
  - **HDL Cholesterol:** 45 mg/dl (normal: 240 mg/dl)
  - **LDL Cholesterol (Calculated):** 94 mg/dl (normal: <100 mg/dl)
  - **Triglycerides:** 179 mg/dl (normal: <150 mg/dl)
  - Cholesterol-to-HDL Ratio: 4.0 (normal: <5.0)
  - **AST:** 20 IU/I (normal: 0-40 IUA)
  - **ALT:** 21 IU/L (normal: 5-40 TUA)
  - **Alkaline Phosphotase:** 66 IU/A (normal: 35-125 IUA) AIC: 7.1% (normal: 4-6%)
  - **Urine Microalbumin:** 48 mg (normal: <30 mg)

- Patient's hyperglycemia reached a threshold that was diagnostic of diabetes1 on two occasions:
  - When she was 25 years of age, she had a randomly obtained blood glucose level of 217 mg per deciliter with polyuria (with diabetes defined as a level of 2200 mg per deciliter [211.1 mmol per liter with symptoms), and
  - When she was 30 years of age, she had on the same encounter a fasting blood glucose level of 133 mg per deciliter (with diabetes defined as a level of ≥126 mg per deciliter) and a resul on a 2-hour oral glucose tolerance test of 236 mg per deciliter (with diabetes defined as a level of 2200 mg per deciliter). On both of these occasions, her glycated hemoglobin level was in the prediabetes range (defined as 5.7 to 6.4%).

**d) Plan:** Management of type 2 diabetes includes:

- **Healthy Eating:** Contrary to popular perception, there's no specific diabetes diet. However, it's important to center the diet around:
  - A regular schedule for meals and healthy snacks
  - Smaller portion sizes
  - More high-fiber foods, such as fruits, non-starchy vegetables and whole grains
  - Fewer refined grains, starchy vegetables and sweets
  - Modest servings of low-fat dairy, low-fat meats and fish
  - Healthy cooking oils, such as olive oil or canola oil
  - Fewer calories
- **Regular Exercise:** Exercise is important for losing weight or maintaining a healthy weight. It also helps with regulating blood sugar levels. One must include exercises such as aerobic exercise, resistance exercise, and limit inactivity.

- **Weight Loss:** Weight loss results in better control of blood sugar levels, cholesterol, triglycerides and blood pressure. If you're overweight, you may begin to see improvements in these factors after losing as little as 5% of your body weight. However, the more weight you lose, the greater the benefit to your health and disease management.
- **Possibly, Diabetes Medication or Insulin Therapy:** Drug treatments for type 2 diabetes include the following:
  - **Metformin** is generally the first medication prescribed for type 2 diabetes. It works primarily by lowering glucose production in the liver and improving your body's sensitivity to insulin so that your body uses insulin more effectively.
  - **Sulfonylureas** help the body secrete more insulin. Examples include glyburide (DiaBeta, Glynase), glipizide (Glucotrol) and glimepiride (Amaryl). Possible side effects include: Low blood sugar and weight gain.
  - **Glinides** stimulate the pancreas to secrete more insulin. They're faster acting than sulfonylureas, and the duration of their effect in the body is shorter. Examples include repaglinide and nateglinide. Possible side effects include: low blood sugar and weight gain
  - **Thiazolidinediones** make the body's tissues more sensitive to insulin. Examples include rosiglitazone (Avandia) and pioglitazone (Actos). Possible side effects include: risk of congestive heart failure, risk of bladder cancer (pioglitazone), risk of bone fractures, high cholesterol (rosiglitazone), and weight gain.
  - **SGLT2 inhibitors** affect the blood-filtering functions in your kidneys by inhibiting the return of glucose to the bloodstream. As a result, glucose is excreted in the urine These drugs may

reduce the risk of heart attack and stroke in people with a high risk of those conditions. Examples include canagliflozin (Invokana), dapagliflozin (Farxiga) and empagliflozin (Jardiance). Possible side effects include: risk of amputation (canagliflozin), risk of bone fractures (canagliflozin), risk of gangrene, vaginal yeast, infections, urinary tract infections, low blood pressure, high cholesterol

## Result :

Notes on subjective, objective, assessment and plan for Diabetes Mellitus (real/ hypothetical) disease conditions was prepared and discussed.

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