**DPT 8th Semester**

**Course Title: Medicine II Instructor: Dr. Ahmed Hayat**

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**MID Term Assignment Marks: 30**

Q1: How will you detect that a person is having diabetes, what will be the sign & symptoms.

Which guidelines you will suggest to that person to cope with this condition?

Q2: How can you distinguish between UTI and Renal failure?

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**Answer no:1**

**DIABETES:**

Diabetes is a metabolic disorder characterized by the high level of sugar in the blood (hyperglycemia). It has two reasons that either there is deficiency of insulin in the body or the body cells are not responding to insulin or it can be both

Insulin is produced by β- cells of the pancreases and thus maintains the blood glucose level.

**Types of diabetes:**

There are two types of diabetes.

Diabetes

TYPE 1 TYPE 2

* Also known as insulin dependent.
* Occurs before the age of 40.
* Body does not produce insulin and thus patients take insulin injection that’s why called as insulin dependent.
* Less common.
* Independent of insulin.
* Occurs in adults.
* The insulin produced is not enough for body or the body does not respond to the insulin present. That’s why its said to be insulin resistant.
* The most common type of diabetes

**Detection:**

Detection of diabetes can be done through the symptoms, patient’s history, family history, socioeconomic status, as this will reveal about the symptoms, age, genetic involvement, eating habits, weight loss and other comorbidity diseases.

After history laboratory findings will help to confirm the diabetes and further tests will even tell that which type of diabetes is patient affected with.

The symptoms that will appear because of diabetes are:

* Increased Thirst
* Frequent Urination
* Unexpected Weight Loss
* Increased Fatigue
* Blurred Vision
* Numbness and Tingling, Especially in Your Feet and Hands
* Slow Healing Sores
* Red, Swollen, Tender Gums
* Skin Itchy
* Irritability

To check whether any of these symptoms are because of diabetes. We will ask patient about their family history. if family history of diabetes reported the patient is at higher risk to be diagnosed with diabetes.

We can ask about lifestyle of patient. If se3dentary life style exist it will point towards diabetes because sedentary lifestyle leads to obesity and then the obesity leads to diabetes

**Eating habits:**

An improper diet that lacks balance of nutrients and essentials and have lots of fat content and carbohydrates leads to obesity and then to the diagnosis of the diabetes.

**Lab tests**

Apart from above mention factor lab tests are the most important factors that contribute to diagnose diabetes

These tests include

**A1C test:** it measures your blood glucose level over the last 3 months. This test doesn’t require fasting. The results of the tests will be given in percentages. The percentage table1.1. This test also check how well you are managing your diabetes higher the number of hemoglobin attached with sugar molecule the poor is the management.

**Fasting plasma glucose:**

That usually done in the morning before that you have to fast for the whole night. The test result above 125 clearly diagnoses diabetes. Tests results with the stages are given in the table 1.1.

**Oral glucose tolerance test:**

In this type of the test, they first take the blood when patient is fasting and that blood sugar level is recorded then after that they give sugary liquid to patient and test the blood sugar level for the next two hours. Test result of more than 200mg/dl (table 1.1) reveals a patient is suffering from diabetes.

**Random blood glucose level:**

Regardless of what you ate, when you ate, they can take blood sample at any time to check blood glucose level. Value above 200mg/dl is a positive result for diabetes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Diagnosis | A1C (%) | Fasting plasma glucose | OGTT (Mg/dl) | Random plasma glucose |
| Normal | <5.7 | <100 | <139 |  |
| Prediabetics | 5.7-6.4 | 100-125 | 140-199 |  |
| Diabetics | 6.4or above | 125 or above | >200 | 200 or above |

Table1.1

So, if any of these results comes under the range of diabetes given above is considered as positive test

That’s how we can detect a patient with diabetes. Through thorough examination, investigation and observations.

**Management of diabetes:**

Prevention and treatment involve:

* Exercise
* Healthy diet
* ABC (A1C test, Blood pressure & Cholesterol)

**Exercise**:

Exercise helps increase the demand of energy for muscles to perform action that will cause glucose to move their and excess of sugar will eventually come up to the level. Walking or swimming are the physical activities that help more and following the diet plan with exercise can help to maintain weight as well

**Healthy diet:**

Patients with diabetes can eat everything but, in a proportion, and after that walk is must. But they have to avoid fatty food consumptions and too much protein intake. Its better to center your diet on fruits, vegetables inshort with high fibers and low in fat and calories.

**A1C test:** this will help you trace your progress of past 3 months and then to check it after 3 months

**Blood pressure:** for the patients with diabetes its better to keep bp below140/90mmhg. Medication is also necessary for some patients

**Cholesterol:**

Avoid taking fatty foods that will increase your LDL level and leads to heart and other arterial insufficiencies.

**Inspection:**

Inspect your body specially feet for any signs of infection or ulceration.

**Medication:**

For type 1: as they are insulin dependent so insulin injections are the necessary thing for them.

For type 2: Enhance insulin secretion

* sulfonylureas (KATP channel blocker)
* Tolbutamide

Overcome insulin resistance

Biguanide (Ampk Activator)

* Metformin

**Answer no:2**

**UTI**

Infection that occurs in the urinary tract. Urinary tract is composed of urethra, urinary bladder, urethras and kidneys. So, infection in any one these structures leads to the urinary tract infection.

These infections are caused by micro-organisms, there are 4 types of UTI:

* Cystitis
* Urethritis
* Pyelonephritis (kidney infection)

**Kidney failure:**

Is the renal insufficiency where the GFR level will fall to only 10-20%. It has two types acute and chronic. Acute is abrupt while chronic is slowly progressive. The glomerular filtration activity will be disturbed while the tubular resorption activity will be disturbed.

UTI vs kidney failure

* **Causes:** Can be caused due to micro-organisms or Extension from other organs.
* Infection to kidney is called pyelonephritis that if left untreated leads to kidney failure.
* It can involve infection of any of the part of urinary tract
* **Symptoms**: symptoms include, pyuria, fever and chills, supra pubic tenderness, nausea vomiting, back pain. White cell cast is also seen in pyelonephritis.
* **Diagnose:** urine analysis presence of pus, high level of bacteria.
* **Lab findings:** alkaline, color change, foul smell, leukocyte esterase & bacteria
* **Treatment:** antibiotics, fluid intake and to maintain urine acidity we can ask the patients to take cranberry juices.
* **Causes:** Can cause due to either blood obstruction, or damage to renal structures.
* This can also cause because of infections but only if infections remain untreated.
* Symptoms to the other regions of body can only due to the complications
* **Symptoms:** symptoms include electrolyte imbalance, edema, anemia, HTN, dry skin, poor appetite, low GFR, metallic taste in mouth, dehydration.
* **Diagnosis:** high level of BUN and serum creatinine.
* Ultrasound is done to check whether acute or chronic.
* **Treatment:** fluid and electrolyte balance, low protein high carbohydrate diet to avoid azotemia. For advance stages renal dialysis and renal transplant.

So on the basis of above mention differences we can say that kidney failure is more complicated than UTI. Kidney failure will not lead to UTI but can cause urinary problems due to the the obstructions or the narrowing of the urethras. But UTI(pyelonephritis) can lead to the kidney failure if left untreated. The diagnosis of both the conditions reveal different result. And thus treatment is also different on the basis of symptoms and complications.