

Diabetes Mellitus

- is metabolic disorder condition in which there is hyperglycemia due to decrease the synthesis, decrease the utilization of insulin which is secreted by Pancreas gland.

Types of Diabetes Mellitus	Causes
▪ Type 1 DM	Auto immune destruction of Beta cell
▪ Type 2 DM	Most common : Insulin Resistant
▪ Gestational DM	Placental Lactogen
▪ Other specific	Drugs : steroid , infection like Mumps

- ❖ **Type 1 DM** : also known as Insulin dependent Diabetes Mellitus , Juvenile Disease , insulin deficiency (absolute) , treatment by Insulin therapy (subcutaneous 90 degree) , more common in age group under 40 year , caused by Mainly autoimmune beta cell destruction of pancreas, usually diagnosed in children , teen age and young children. But also develop in adult.Ketoacidosis is more common in Type I DM . weight loss is more common in Type I DM
- ❖ **Type II DM** : Non insulin dependant Diabetes mellitus (NIDDM) – more common is Type 2 Dm , adult onset Diabetes mellitus , asymptomatic in many year so DM compare as “Iceberg phenomenon”.weight loss is not common . insulin resistance is common (cell of body doesnot response to insulin is insulin resistance)

Difference between Type 1 & Type 2 DM

Type I DM	Type II DM
Auto immune destruction of beta cell leading to insulin deficiency	Reduced sensitivity to insulin or insufficient secretion of insulin
Age < 40 years	Age > 40 years
Symptoms duration : weeks	Symptoms months to year
Body weight : Normal or low	Obesity
Ketonurea – present	Ketonurea absent
Rapid death without treatment – yes	No
Family history – Uncommon	Common
Ketoacidosis – common	Uncommon

❖ GESTATION DIABETS MELLITUS

- Resistance of insulin due to Placental Lactogen. Best screening time : 24-28 weeks , best screening test : Oral Glucose tolerance test ,
- Effects on fetus : large baby (>4000 grams) , obstructed labour , abortion , still births , obesity of child.

Effects to Mother

- Pre-eclampsia, Post partum hemorrhage , polyhydroamnios, subinvolution , recurrence rate of DM (35-50 %) , increase rate of CS delivery ,
- Diet in pregnancy (Normal pregnant : 30kcal/kg/day) , DM : 25kcal/kg/day

DIAGNOSIS OF GESTATION DM

OGTT – Oral Glucose Tolerance Test

Fasting Blood sugar	≥ 92 mg/dl	
OGTT test	≥ 180mg/dl	1 hrs (after 75 gm oral Glucose
OGTT test	≥ 153mg/dl	2 hrs

- ❖ **Risk Factors** : Obesity , lack of Physical activity , alcohol , smoking , HTN , Genetics , Sedentary life style , ageing , Excess calorie intake , disease of pancreas.
- ❖ **Clinical Features** : Polyurea(increased frequency of Urine) , Polyphagia(increased thirst) , polydipsia (increased hunger) , delayed wound healing , Neuropathic foot ulcer , fatigue , malaise , Burning micturition , lower limb paraesthesia , tingling sensation , Blurred vision , Blurred vision , due to retinopathy , weight loss in type 1 DM , obesity in Type 2 Dm , Kussmaul breathing (Hyperventilation ,) smell of acetone in breath (fruity smell of breaths) , nausea and vomiting , abdominal pain

Acanthosis nigricans : brown to black (hyperpigmented skin) on mainly axilla necks , armpit

COMPLICATION OF DM

- Diabetes neuropathy – paraesthesia – tingling sensation of limbs
- Diabetic retinopathy , cataract , glaucoma
- Diabetes nephropathy
- Diabetes ulcer , HTN , CVA , MI (Myocardial infarction)

DIAGNOSIS

Test	Normal	Cut off value
FBS	70-110 mg/dl	≥ 126 mg/dl or ≥ 7mmol/l
RBS	110-140 mg/dl	≥ 200 mg/dl or ≥ 11.1mmol/l

HbA1c	5.7 %	≥ 6.5%
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Other Investigation

- Complete blood count
- HbA1c – monitor the control of sugar in 3 months
- Lipid profile , cholesterol , urea and creatinine , urine examination , eye examination (6 months) , chest x ray , ECG , liver function test , Renal function test , BP monitoring

❖ TREATMENT OF DIABETES MELLITUS

Treatment of diabetes mellitus in 3 ways (1 . Physical activity 2 . food 3 . drugs

- 1) acin week) , Loose weight and obesity
- 2) Control Diet : Calorie restriction , take calorie 1500-2000 kcal / day (1800)
- 3) Drugs : Insulin for Type 1 DM and Oral hypoglycemic drugs for Type 2 Diabetes mellitus

❖ Insulin Therapy

- All patient of Type 1 Dm , Diabetes in pregnancy , uncontrolled Diabetes by oral hypoglycemic drug
- Route of insulin is: Subcutaneous , angle – 90 deegree
- Site : abdomen , arm , thigh , buttocks , note : best for absorption – abdomen

❖ TYPE OF INSULIN

- Long acting insulin – action duration (12-36 hrs) , onset of action 1-2 hrs , given – 1 to 2 hours before meal ,
- Rapid or short acting insulin : action Duration : 2-6 hours , onset of action : 15-30 min , given 15 min before meal

❖ ORAL HYPOGLYCEMIC DRUGS

- First line drugs : Metformin 500 mg BD – Continue (side effects- GI upset)
- Glimeperide : side effects hypoglycemia