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REVIEW ON DIABETES MELLITUS 2

Amruta R. Kulthe[1], Dr. A.R. Aswar[2]
[1]Student, [1,2.]Department of Pharmacology, HSBPVT College of Pharmacy Kashti , Tal - Shrigonda District - A.Nagar – 414701

ABSTRACT
Diabetes Mellitus is a chronic disorder of carbohydrates , protein and fat metabolism. It is one of the most common diseases world wide. It is a chronic disease in which prevalence has been increses all over the world. There is increase in prevalence in type 1 diabetes also. Type 2 Dieabetes is a serious and common chronic disease resulting due to risk factors such as obesity and secondary lifestyle.
KEYWORDS: *TYPE 2 DIABETES , Diagnosis, Management, Treatment*

INTRODUCTION

Diabetes mellitus (DM) is probably one of the oldest diseases known to man. It was first reported in Egyptian manuscript about 3000 years ago.[1] In 1936, the distinction between type 1 and type 2 DM was clearly made.[2] Type 2 DM was first described as a component of metabolic syndrome in 1988.[3] Type 2 DM (formerly known as non-insulin dependent DM) is the most common form of DM characterized by hyperglycemia, insulin resistance, and relative insulin deficiency.[4] Diabetes mellitus is commonly reffered to as a ''sugar'' and it is the most common endocrine disorder and occours due to less secretion of insulin from pancrease.Type2 diabetes occours due to obesity and weight gain. IN Diabetes mellitus insulin resistance occours due to decrese in sensitivity of beta cells of ''Islets of Langherans''.

Epidemiology

It is estimated that 366 million people had DM in 2011; by 2030 this would have risen to 552 million.[8] The number of people with type 2 DM is increasing in every country with 80% of people with DM living in low- and middle-income countries. DM caused 4.6 million deaths in 2011.

Classification of Diabetes Mellitus

1) Insulin Dependent Diebetes Mellitus (Type 1 IDDM) -This type of diabetes is depends on insulin and also called as autoimmune diabetes. Previously it is called as juvenile-onset or Ketosisprone Diebetes.Type 1 diabetes is occours due to destruction of Beta cells of Islets of Langerhans.The rate of destruction of cells is variable . IN type 1 diabetes mellitus there is absence of secretion of insulin from the cells. Treatment of type1 diabetes mellitus include use of drugs that increses insulin secretion from pancreas or direct insulin injection is taken intravenously.
2) **Non-Insulin Dependent Diabetes Mellitus(Type2 Niddm)** Type 2 diabetes mellitus is also known as adult-onset diabetes. It occurs due to decrease in sensitivity of insulin . In this type of diabetes there is resistance of insulin takes place. Comlications of diabetes mellitus includes that it affects the nerves ,kidneys,eyes. It causes severe cardiovascular complications.The causes of type2 diabetes are obesity, sedentary lifestyle.incresing age, genetic factors, and reactive oxygen species damage.), such patients are at increased risk of developing macro vascular and micro vascular complications and risk of generating type 2 diabetes.
3) **Gestational Diabetes Mellitus**

The diabetes that occurs during pregnancy is called as Gestational Diabetes Mellitus {GDM}. It generally consider recoverable diabetes with medications.

Other Specific Type (Monogenic Types)

Monogenic type of diabetes is a rare form of diabetes caused by mutation in single gene.They also referred to as genetic defects of beta cells. These forms of diabetes are frequently characterized by onset of hyperglycemia at an early age (generally before age of 25 years.They are also referred to as maturity onset diabetes of the young (MODY)[12] or maturity-onset diabetes in youth or with defects of insulin action.Unlike type1 or type2 diabetes,which are polygenic and influenced by environmental and genetic factors, monogenic diabetes is inherited in a mandelian pattern.

Common Signs and Symptoms

Some common signs and symptoms of type 2 diabetes are,

1) Incresed thirst(Polydipsia)

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2) Frequent urination (Polyuria)
3) Incresed hunger(Polyphasia)
4) Unexplained weight loss
5) Fatigue or feeling tired easily
6) Blurred vision
7) Slow healing of wounds
8) Tingling,numbness or burning sensation in hands/feet
9) Darked patches of skin

Causes of Diabetes Mellitus

1. Reduced sensitivity of peripheral tissues to insulin- Decrese in sensitivity of insulin receptors causes decrese in secretion of insulin which causes hyperglycemia.
2. Excess of hormone glucagon causes hyperglycemia.Incresed in glucagon hormone is due to obesity and other lifestyle factors.
3. Other rare forms of diabetes mellitus are those due to specific genetic defects (type 3) like "maturity onset diabetes of young" (MODY) other endocrine disorders, pancreatectomy and gestational diabetes mellitus (GDM).
4. Imbalance in specific receptors like GLP1 receptor,peroxisome proliferate activated receptor(PPARy) causes increase in blood sugar level which causes type2 diabetes mellitus.

Pathophysiology

The pathophysiology of diabetes mellitus explains how the disease develops inside the body.It varies depending on the type of diabetes, but the central problem is due to deficiency of insulin action- either due lack of its secretion or resistance to its action.
There is an increase in the breakdown of fat with hyperglycemia. In diabetes mellitus the beta cells of pancreas becomes unstable to produce sufficient insulin.

As a result of this dysfunction, glucagon and hepatic glucose levels that rise during fasting are not suppressed with a meal. Given inadequate levels of insulin and increased insulin resistance, hyperglycemia results. The incretins are important gut mediators of insulin release,dysfunction in these incretins causes hyperglycemia.

Dysfunctioning of the receptors like glucagon like peptide(GLP), peroxisome proliferative activated receptor(PPARy) also causes hyperglycemia leads to diabetes mellitus.

Treatment of Diabetes Mellitus

Treatment of diabetes mellitus aims to maintain near normal blood glucode levels, prevents acute complications, and reduce long term complications.

1) General Treatment Measures(For all types)
   - **Lifestyle Modification**
   - Balanced diet (low refined carbs, high fiber, controlled calories, reduced saturated fats).
   - Regular physical activity (≥150 min/week of moderate exercise).
   - Weight management (especially in overweight/obese patients).
   - Avoid smoking and excess alcohol.
   - **Monitoring**
   - Regular blood glucose checks.
   - HbA1c every 3–6 months.
   - Monitor BP, lipids, kidney, eye, foot health.

2) Treatment ofType1 Diabetes Mellitus –
   - Insulin therapy is essential(lifelong)

   a. Rapid acting insulin
   b. Short acting insulin
   c. Intermediate acing insulin

3) Treatment ofType2 diabetes mellitus –
   a. Lifestyle modifications (Diet,Exercise,Weight reduction)
   b. Oral antidiabetic drugs
   1) Biaguanides (For e.g Metformin, phenformin)

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2) Sulphonylureas (For e.g Tolbutamide, Glipizide)
3) Meglitinides (Repaglinide, Nateglinide)
4) Thiazolidinediones (Pioglitazone, Rosiglitazone)
5)Alpha glucocidase inhibitors (For e.g Acarbose)

4) Treatment of Gestational Diabetes Mellitus–
1. Diet and exercise
2. If not controlled insulin is preffered(safe in pregnancy)

5) Treatment of Secondary band Monogenic Diebetes –
1. Secondary DM : Treat underlying cause and control blood glucose level
2. MODY(monogenic) :some types respond well to sulphonylureas instead of insulin
3. Neonatal DM : Treated with insulin or sulphonylureas(depending on mutation)

Management

Diabetes mellitus is a chronic metabolic disorder that requires lifelong management to maintain normal blood glucose levels and prevent complications. Through lifestyle and diet modification it can be managed. prevented by lifestyle modification. Patients with type 2 DM should receive a medical nutrition evaluation; lifestyle recommendations should be tailored according to physical and functional ability.Effective management requires a multidimensional approach including lifestyle modifications(Diet, Exercise).

CONCLUSION

Diebetes mellitus is a chronic,progressive metabolic disorder characterized by hyperglycemia due to defects in insulin secretion,insulin action,or both.Effective management requires a multidimensional approach including lifestyle modification,patient education, pharmacological therapy(Oral hypoglycemic agents or Insulin).

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