Diabetes

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**What is Diabetes?**

A group of metabolic diseases characterized by high blood glucose levels that result from defects in the body's ability to produce and/or use insulin.

**Symptoms:**

* Polyuria (excessive urination)
* Polydipsia (excessive thirst)
* Polyphagia (excessive hunger)
* Blurred vision
* Fatigue
* Slow healing bruises

**Diagnosis of Diabetes can be done by:**

* Fasting Plasma Glucose Test
* Oral Glucose Tolerance Test
* Random Plasma Glucose Test

**Types of Diabetes:**

**A. Type I Diabetes**

* Autoimmune destruction of pancreatic beta cells
* Pancreas produces little or no insulin
* Genetic and early onset
* Insulin replacement is needed and is the only effective drug (administered subcutaneously). Insulin can be short/rapid, intermediate, or long acting

**B. Type II Diabetes**

* Insulin is produced, but is not used properly
* Cells become resistant to insulin
* Later onset (over 35 years of age)
* Strong genetic component

**Oral Type II Diabetes Medications**

**1.** **Sulfonylureas**

MOA: Stimulate the pancreas to release more insulin, both right after a meal and then over several hours.

Take 1-2 times a day with meals.

Diabinese (chlorpropamide), Diabeta, Micronase (glyburide), Glucotrol (glipizide), Amaryl (glimrpiride)

Adverse Effects: Occasional skin rash, photosensitivity, cardiovascular vasculitis, upset stomach, low blood glucose

**2. Meglitinides**

MOA: Stimulate the pancreas to release more insulin right after a meal.

Prandin (repaglinide) and Starlix (nateglinide)

Adverse Effects: Effects diminish quickly:low blood glucose (less likely than sulfonylureas) Occasionally can interact with alcohol and cause vomiting, flushing, sickness.

**3. Biguanides**

MOA: decrease the amount of glucose released from liver.

It is usually taken 1-2 times per day with breakfast and an evening meal.

\*Glucophage (metformin)

Take with food to minimize the following symptoms: Diarrhea, nausea/vomiting, flatulence (gas), bloating

**4. Thiazolidinediones**

MOA: Make the body more sensitive to the effects of insulin.

Usually taken at the same time once a day.

\*Avandia (rosiglitazone) and ACTOS (pioglitazone)

Adverse Effects: Fluid retention, swelling, weight gain, increased risk for congestive heart failure

**5. Alpha-glucosidase inhibitors**

MOA: Slows the absorption of carbohydrate into your bloodstream after eating. Take with the first bite of a meal (do not take if not eating).

\*Precose (acarbose) and Glyset (meglitol)

Adverse Effects: Gas, diarrhea, upset stomach, and abdominal pain

**6. Dipeptidyl Peptidase IV inhibitors**

MOA: Improve Insulin level after a meal and lowers the amount of glucose made by your body. Take at the same time once a day. It has a neutral/positive effect on cholesterol levels.

\*Januvia (sitagliptin), Onglyza (saxagliptin), Tradjenta (linagliptin), and Nesina (alogliptin)

**Complications**

* Coronary Artery Disease
* Neuropathy
* Retinopathy
* Nephropathy
* Angina
* Myocardial Infarction
* Periodontal Disease
* Xerostomia
* Caries
* Pain/burning of tongue
* Increased risk of infection
* Candida infection

**Overall Drug Interactions**: Alcohol, Aspirin/NSAIDs, and Epinephrine.

**C. Gestational Diabetes**

* Develops during pregnancy
* No longer present after pregnancy
* Risk of developing type II diabetes in the future

References

<http://www.diabetes.org/> <http://www.mayoclinic.com/health/diabetes>

<https://www.joslin.org/info/oral_diabetes_medications_summary_chart.html>