DRUGS FOR TREATMENT OF DIABETES MELLITUS
CHAPTER 21

Pancreatic Hormones
insulin

glucagon

Diabetes mellitus: abnormal carbohydrate metabolism with inappropriate persistent hyperglycemia

Type I (IDDM, juvenile onset)

Type II (NIDDM, adult onset)

Systemic complications: **angiopathy**

Dental complications

Management of DM patient
Evaluation ASA risk assessment
blood glucose (mg/dl) (serum glucose, plasma glucose)

glycosylated hemoglobin $HbA1_C$ (%)

ASA risk assessment
ASA 2
ASA 3
ASA 4

Drugs to manage diabetes (add'l resource: http://en.wikipedia.org/wiki/Anti-diabetic_medication)
Type 1DM
1. Insulin
MA: replaces endogenous insulin
ADR's **hypo**glycemia
ex: Novolog, Humalog, Lente, Lantus

Type 2 DM
1. Sulfonylureas: (secretagogues)
MA: ↑ release of insulin from beta cells, ↓ serum glucagon, ↑ insulin sensitivity in target tissues
ADR's: **hypo**glycemia, blood dyscrasias, GI, cutaneous, liver damage
ex: glimeperide**,** glyburide**,** glipizide

2. Biguanides: (sensitizer)
MA: ↓ hepatic production of glucose, ↑ insulin sensitivity in target tissues
ADR's: GI, ***lactic acidosis***
ex: metformin

3. Meglitinide derivatives ("glinides", non-sulfonylurea secretagogues):
MA: ↑ release of insulin from beta cells,
ADR's: **hypo**glycemia, weight gain, must be taken with meals
ex: repaglinide (Prandin), nateglinide (Starlix)

4. Thiazolidinediones ("glitizones", "TZD's") (sensitizer)
MA: ↑ insulin sensitivity in target tissues
ADR's: weight gain, ***hepatotoxicity***
ex: pioglitazone (Actos), rosiglitizone (Avandia)

5. Dipeptidyl-Peptidase-4 inhibitors (secretagogue)
MA: ↑insulin synthesis, oppose glucagon
ADR's: weight gain, pancreatitis
ex: sitagliptin (Januvia)

6. α-glucosidase inhibitors (non-secetagogue)
MA: delay/prevent digestion of ingested carbohydrate (small intestine), delays glucose adsorption
ADR's: GI
ex: acarbose (Precose), miglitol (Glyset)

7. Glucagon-Like Peptide-1 Receptor Agonists (incretin mimetics, secretagogues)
MA: ↑ release of insulin from beta cells, ↓ serum glucagon, ↑ satiety
ADR's: GI, hypoglycemia, injection
ex: exenatide (Byetta)

8. Sodium Glucose Transporter-2 Inhibitors (non-secretagogue)
MA: blocks reabsorption of glucose in kidney
ADR's: GI, genital yeast infections, UTI, ↑urination
ex: canagliflozin (Invokana)

9. Amylin analogues (non secretagogue)
MA: slow down gastric emptying, ↑ satiety
(amylin secreted along with insulin by pancreatic β- cells)
ADR's: GI, headache, ↑ risk of hypoglycemia
ex: pramlintide (Symlin)

10. bile-acid sequestrants (colesevelam / Welchol)
MA: lowers LDL cholesterol / diabetes?
ADR's: GI, can ↑ serum triglycerides
ex: colesevelam (Welchol), colestipol (Colestid), cholestyramine (Questran)

Medical emergencies

hypoglycemia (too much insulin, not enough food, too much exercise)
symptoms: headache, mental confusion, blurred vision → loss of consciousness→ coma→ death

hyperglycemia (lack of insulin, elevated blood glucose)
symptoms: GI, mental confusion, ↑ urination, ↑ pulse, ↓ BP, ketoacidosis→ loss of consciousness → coma→ death

DH Considerations

at risk for ↑ for caries
at risk for infection and ↓ wound healing
hypoglycemia possible with several meds
manage emergency as hypoglycemia (give sugar)
ASA classification - must know level of glucose control