Non-insulin anti-diabetic agents

- **Slow onset of action**
- **Varied duration of action in different individuals**
- **Little flexibility, difficult to titrate in-house**

*** NOTE: many of the contraindications develop unexpectedly during acute illness. For this reason, general recommendation is to discontinue oral agents during hospitalization.

Non-insulin agents can be continued in stable patients, with normal nutritional intake, adequate BG control, stable renal and cardiac function.

**Generic and Class** | **Brand Name** | **Contraindications/ Cautions** | **Side effects**
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**Sulfonylureas** | | | |
Glimepiride | Amaryl | **Contraindications:** DKA, NPO status. **Cautions:** Risk of prolonged/ severe hypoglycemia if caloric intake is reduced. Long action with varied duration of action in different individuals. Increased risk of hypoglycemia in renal or hepatic impairment and elderly. Greatest benefit achieved at half maximum dose. Dose modification required with glimepiride and glyburide due to renal elimination. Less pronounced effect with glipizide. | Hypoglycemia, weight gain, potential increased risk of cardiovascular mortality |
Glipizide | Glucotrol | | |
Glyburide | Diabeta | **Contraindications:** 1) serum creatinine levels >1.5 mg/dL (males), >1.4 mg/dL (females) 2) metabolic acidosis, including DKA. 3) For studies involving iodinated contrast materials, discontinue at the time of or prior to the procedure, and withhold for 48 hours after the procedure. **Cautions:** advanced age, excessive alcohol intake, hepatic disease, hypoxemia, surgery. | GI symptoms common: diarrhea, nausea, flatulence, indigestion |
**Biguanides** | | | |
Metformin | Glucophage, Fortamet, Glumetza, Riomet (liquid formulation) | **Contraindications:** Heart failure NYHA Class III or IV. **Cautions:** Can increase intravascular volume, worsening edema or exacerbating HF. Do not use if baseline ALT >2.5X upper limit of normal or active liver disease. Slow onset of effect (8-12 weeks). Actos has favorable lipid profile, Avandia has negative lipid profile. | Weight gain, edema. See literature re: risk of myocardial ischemic events. |
**Thiazolidinediones (TZD's)** | | | |
Pioglitazone | Actos | **Contraindications:** Type 1 DM, DKA. **Cautions:** Renal impairment (renal dosing), severe hepatic disease, pancreatitis. Has not been approved for use with insulin. No data to support use in acute care setting. | Headache, nasopharyngitis, URI |
Rosiglitazone | Avandia | | |
**Alpha-Glucosidase inhibitors** | | | |
Acarbose | Precose | **Contraindications:** cirrhosis, intestinal diseases associated with decreased absorption or digestion, DKA, bowel obstruction. **Cautions:** Because alpha glucosidas inhibitors impair GI absorption of carbohydrates, any hypoglycemia must be treated with pure glucose, not food or drink — safety risk inpatient. | Abdominal bloating, diarrhea, and flatus |
Miglitol | Glyset | | |
**DPP-4 Inhibitors** | | | |
Sitagliptin | Januvia | **Contraindications:** Type 1 DM, DKA, pancreatitis. **Cautions:** Renal impairment, hypovolemia, gastroparesis or other GI disorders. Has not been approved for use with insulin. No data to support use in acute care setting. | Diarrhea, indigestion, nausea, vomiting. Rare: acute pancreatitis. Hypoglycemia risk increased when used with insulin secretagogues. |
Saxagliptin | Onglyza | | |
**Incretin Mimetics (SQ injectables, not available as po meds)** | | | |
Exenatide | Byetta | **Contraindications:** Type 1 DM, DKA, pancreatitis. **Cautions:** Renal impairment, hypovolemia, gastroparesis or other GI disorders. Has not been approved for use with insulin. No data to support use in acute care setting. | Diarrhea, indigestion, nausea, vomiting. Rare: acute pancreatitis. Hypoglycemia risk increased when used with insulin secretagogues. |
Liraglutide | Victoza | | |
**Non sulfonylurea Secretagogues** | | | |
Nateglinide | Starlix | **Contraindications:** DKA, type 1 diabetes. **Cautions:** moderate to severe hepatic disease, elderly, malnourished, hepatic or renal insufficiency | Hypoglycemia, diarrhea, nausea |
Repanaglide | Prandin | **Contraindications:** DKA, type 1 diabetes. **Cautions:** Not for use with NPH insulin (severe cardiovascular events possible). Elderly, malnourished, hepatic or renal insufficiency. | |
**Amylin analog (SQ injectables, not available as po med)** | | | |
Pramlintide | Symlin | **Contraindications:** gastroparesis, hypoglycemia unawareness, poor compliance. **Cautions:** CrCl < 20 ml/min, HbA1C > 9% | Abdominal pain, loss of appetite, nausea, vomiting, headache, fatigue, anorexia. |
**Bile acid sequestrant** | | | |
Colesevelam | Welchol | **Contraindications:** Bowel obstruction, Serum TG > 500 mg/dL. H/o hypertriglyceridemia induced pancreatitis. **Cautions:** swallowing disorders or dysphagia, phenylketonurics, TG > 300 mg/dL. GI motility disorders, fat soluble vitamin deficiencies. | Constipation, dyspepsia, abdominal pain, nausea. |