

Oral Hypoglycemic Agents

Drug Class	Common Agents	Daily Dose (mg)	↓Fasting Plasma Glucose (mg/dl)	↓HbA1C (%)	Lipids	Body Weight	Comments
Sulfonylureas Stimulate insulin secretion	Glimepiride Glipizide Glyburide	1 to 8 qd 2.5 to 40 qd, bid 2.5 to 20 qd, bid	60-70	0.8-2.0	No effect	Increase	Glyburide is excreted renally; should be used with caution in patients with renal dysfunction due to risk of hypoglycemia Glipizide and glimepiride (active metabolite) are preferred and can be used at low doses with glomerular filtration rate < 50 mL/min May reduce the magnitude of increase in ST segment elevation results in misdiagnosis of MI.
Meglitinides Stimulate insulin secretion	Repaglinide Nateglinide	0.5 to 16 bid-qid 360 bid-qid	65-75	0.8-2.0	No effect	Increase	Dosed 15 minutes before each meal Monitor dose increases in patients with moderate to severe renal dysfunction Better post-prandial glucose control
Alpha-Glucosidase Inhibitors Slows digestion of carbohydrates Delays glucose absorption Reduces increase in postprandial blood glucose	Acarbose Miglitol	75 to 300 tid 75 to 300 tid	25-30	0.7-1.0	No effect	No effect	Taken with first bite of each meal Being with 25 mg per meal and titrate to 2- to 4-week intervals to 100 mg per meal as needed No clinical data regarding use in patients with renal dysfunction
Biguanides Decreases hepatic glucose production Enhances muscle glucose uptake and utilization	Metformin	500 to 2550 bid-tid	50-70	1.5-2.0	↓TG, LDL ↑HDL	Decrease	Contraindicated in renal dysfunction due to risk of lactic acidosis Can be cautiously prescribed in patients with stable creatinine (men <1.5 mg/dL; women <1.4 mg/dL) and normal hepatic function Should be discontinued in cases of transient renal insufficiency acute rejection congestive heart failure radiocontrast agents
Thiazolidinediones Enhance tissue sensitivity to insulin in muscle Suppress hepatic glucose production	Rosiglitazone Pioglitazone	2 to 8 qd or bid 15 to 45 qd	60-80	1.4 -2.6	↓TG, ↑LDL, HDL	Increase	May take six weeks for onset of action and months for peak action Require the presence of insulin (natural or exogenous) Avoid in patients with hepatic dysfunction May cause fluid retention; should be avoided in patients at risk for CHF Use requires monitoring of liver function

Drug-Induced Hypoglycemia

The most common cause of medication-induced hypoglycemia is improper management of diabetes. Missing meals, overexertion, and intentional or unintentional overdose of medications used to treat the condition can all cause blood glucose levels to drop. Medications that can cause hypoglycemia include insulin and sulfonylureas.

Drug	Mechanism of Action	Clinical Significance
Well Established		
Alcohol (ethanol)	Impairs gluconeogenesis and increases insulin secretion.	+++
Pentamidine	Cytolytic response in pancreas accompanied by insulin release.	+++
Triazole antifungals	Enhance the effect of sulfonylureas.	+++
Case Series		
β-Adrenergic antagonists	Inhibit glycogenolysis; attenuate signs and symptoms of hypoglycemia.	++
Chloramphenicol	May inhibit metabolism of sulfonylureas.	++
Chloroquine	Unknown (hypoglycemia leading to death has been reported in overdose).	++
Disopyramide	Unknown; appears to result from endogenous insulin secretion.	++
Phenylbutazone	Reduces clearance of sulfonylureas.	++
Salicylates	Increase insulin secretion and sensitivity; may alter pharmacokinetic disposition of sulfonylureas.	++
Case reports		
Anabolic steroids	Decrease glucose tolerance.	+
Angiotensin-converting enzyme inhibitors	May improve insulin sensitivity, particularly in skeletal muscle.	+
Clofibrate	Unknown.	+
Gatifloxacin	Unknown.	+
Monoamine oxidase inhibitors	May increase insulin release and decrease sympathetic response to hypoglycemia.	+
Saquinavir	Unknown.	+
Sulfonamides	Alter clearance of sulfonylureas.	+