Mechanisms of Action of Glucose-Lowering Oral Antidiabetic Agents

Antidiabetic Class	Mechanisms of Action	Expected Decrease in HbA1C	Other Clinical Advantages
Biguanide (metformin)	Decreases hepatic glucose output; lowers fasting glycemia	1%-2%	Weight neutral
SUs	Enhance pancreatic insulin secretion	1%-2%	Rapidly effective
Glinides	Stimulate insulin secretion	0.5%-1.5%	Rapidly effective
α-glucosidase inhibitors	Reduce rate of polysaccharide digestion to minimize post-prandial glucose excursions	0.5%-0.8%	Weight neutral
TZDs	Increase insulin sensitivity in muscle, fat, and liver cells	0.5%-1.4%	Improved lipid profile (pioglitazone)
GLP-1 agonists	Improve glucose-mediated insulin secretion; suppress glucagon secretion; slow gastric motility	0.5%-1%	Weight loss; minimal risk of hypoglycemia
DPP-4 inhibitors	Improve glucose-mediated insulin secretion	0.5%-0.8%	Weight neutral; minimal risk of hypoglycemia
Pramlintide	Slows gastric emptying; inhibits glucose-dependent glucagon production; decreases post-prandial glucose excursions	0.5%-1%	Weight loss

SU = sulfonylurea; TZD = thiazolidinedione; GLP = glucagon-like peptide; DPP = dipeptidyl peptidase

Adapted from: Nathan DM, Buse JB, Davidson MB, et al. Medical management of hyperglycemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy. A consensus statement of the American Diabetes Association and the European Association for the Study of Diabetes. *Diabetes Care*. 2009;32:193-203.