Antidiabetic Medications & their Medical Nutrition Therapy Significance

Drugs, Class/ **Site of Action**/ System(s) Targeted	Glycemic Elevations Most Affected & Expected A1c Reduction	Recommended SMBG Testing for Effectiveness	Greatest Risk for Hypoglycemia	Medical Nutrition Therapy (MNT) Implications
Secretagogues: *Sulfonylureas* / **Pancreas**				
Glipizide *Glyburide* *Glimeperide*	Fasting & postprandial & A1c 1-2%	2-3 times per day, especially fasting	• 4-6 hours after meals & fasting • with missed meal or snacks	• emphasize weight management techniques • appropriate snacks and timing • take before meal; skip drug if not eating
Secretagogues: *Non-Sulfonylureas/* **Pancreas**				
Repaglinide *Nateglinide*	Postprandial & A1c 0.5-2%	2 hours after meal	• 1 hour after meal • with missed meal or snacks	• emphasize weight mgt techniques • appropriate snacks and timing • take before meal; skip drug if not eating
Sensitizers: *Biguanides/***Liver***/Muscle/Adipose Tissue*				
Metformin	Fasting & postprandial & A1c 1 to 2%	Fasting	• None	• may cause weight loss • limit foods that can cause GI side effects • take with food to reduce GI side effects
Sensitizers: *Alpha-Glucosidase Inhibitors/***Small Intestines**				
Acarbose *Miglitol*	Post-prandial & A1c 0.5-0.8%	2 hours after meal	• None • Treat with glucose tablets (pre-digested carbohydrates)	• must be taken before carbohydrate-containing meals, with first-bite of food • caution for GI side effects & minimize by reducing foods that cause abdominal bloating, & flatulence • may cause low serum iron
Sensitizers: *Thiazolidinediones/***Muscle***/Liver/Adipose Tissue*				
Rosiglitazone *Pioglitazone*	Fasting & postprandial & A1c 1 to 2%	2 -3 times per day, especially fasting	• None	• reduce caloric consumption to avoid weight gain • reduce sodium to reduce fluid retention • can be taken with or without food • adequate osteoporosis protection
Incretin System: *DPP-4 Inhibitors/***Small Intestines***/Pancreas/Liver/Muscle*				
Sitagliptin *Saxaliptin* *Linagliptin* *Alogliptin*	Fasting, postprandial & A1c 0.7 to 1.4%	2 -3 times per day	• None	• weight-neutral • concentrate on healthy food choices • can be taken with or without food
Incretin-Mimetic: *GLP-1 Receptor Agonists/***Small Intestines***/Pancreas/Liver/Musce/Brain/Adipose Tissue*				
Exenatide & Exenatide XR *Liraglutide* *Albiglutide*	Postprandial & A1c 0.5-1.5%	2 hours after meals and fasting	• a reactive hypoglycemia if significant hyperglycemia	• slows gastric emptying & causes feeling of fullness halfway through meals • can cause some nausea or feelings of satiety early in meals (avoid greasy or acidic foods; counteract with carbonated beverage or ginger) • increased water & fiber since potential side effect of constipation

Dulaglutide				• give 30-60 minutes before eating & do not take after or during eating • consume at least 30 grams of complex carbohydrate
Amylin Mimetic: **Pancreas**				
Pramlintide	Postprandial & A1c 0.3-0.6%	Before meals & 2 hours after	• 2-3 hours after meals	• slows gastric emptying • causes feeling of fullness halfway through meals • can cause some nausea or feelings of satiety early in meals • consume at least 30 grams carbohydrates
Dopamine Agonist: **Brain**				
Bromocriptine mesylate	Postprandial & A1c 0.6-0.9%	Postprandial	• None	• take with food within 2 hours of awakening • may cause nausea • weight-neutral
Sodium Glucose Co-transporter 2 Inhibitors: **Kidney**				
Canogliflozin *Dapagliflozin* *Empagliflozin*	Fasting, postprandial & A1c 0.91-1.16%	Fasting, pre-meals, & postprandial	• None	• may increase LDL cholesterol • may increase risk of hypotension • may promote weight loss
Insulins: *Basal Analogs (long-acting)*				
Glargine *Detemir*	Fasting & A1c	Fasting & Pre-meals	• None	• timing of meals not an issue if receiving proper dose, but carry snacks in case meal is delayed
Insulins: *Mealtime Analogs (rapid-acting)*				
Lispro *Aspart* *Glulisine* *Afrezza (inhaled)*	Postprandial & HbA1c	Postprandial	• 1 to 1 ½ hours post-injections	• insulin to carbohydrate ratio education • hypoglycemic precautions
Insulins: *Intermediate-Acting (NPH)*				
Humulin N *Novolin N*	Fasting & HbA1c	Fasting & Pre-meal & Between-meal	• 6-12 hours post-injections	• eat 3 meals daily with between meal snacks • keep carbohydrate content of meals as consistent as possible
Insulins: *Short-Acting (Regular)*				
Humulin R *Novolin R*	Postpranidal & HbA1c	Post-prandial & Between-meal	• 2-4 hours post-injections	• insulin to carbohydrate ratio education • keep snacks available due to unpredictability
Insulins: *Pre-mixed Analogs (combination basal & mealtime)*				
Lispro Protamine/ Lispro *Aspart Protamine/ Aspart*	Fasting, Postprandial & HbA1c	Fasting, Pre-meals & Post-prandial	• 1-4 hours post-injection	• eat 3 meals daily • keep carbohydrate content of meals as consistent as possible