UC Irvine GWEP C3OA

CULTIVATING A CULTURE OF CARING FOR OLDER ADULTS

TIPS FOR

Managing Diabetes Mellitus Type 2 In Older Adults

1 in 4 Older adults have DIABETES!

Glycemic control goals should be individualized based on comorbid conditions, life expectancy and risks/benefits of treatment.

Ask patients about common geriatric syndromes (falls, incontinence, cognitive impairment, depression, etc.), as they are more common in patients with Diabetes.

Remember it takes approximately 5-10 years of poor glycemic control to develop microvascular complications.

Avoid hypoglycemia. Hypoglycemia symptoms include: irritability, confusion, tachycardia, impaired concentration, shakiness, etc.

Remember the **Glycemic Control Goals for Older Adults**

Health Status	HbA1c Goal
Healthy with few chronic conditions	<7.5%
Multiple coexisting conditions or limited life expectancy	<8.0%
End stage chronic disease or significant dementia	<8.5%

Adapted from the American Diabetes Association. Standards of Medical Care in Diabetes 2017. Diabetes Care 2017; 40 (Suppl.1):S99-s104

This project is supported by the Health and Resources Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under 1 U1QHP2872-01-00, Cultivating a Culture of Caring for Older Adults, for $2.5 million. This information or content and conclusions are those of the author and should not be construed as official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

UC Irvine GWEP C3OA

CULTIVATING A CULTURE OF CARING FOR OLDER ADULTS

TIPS FOR

Managing Diabetes Mellitus Type 2 In Older Adults

START WITH MONOTHERAPY UNLESS:

- A1C is ≥ 9%, consider **DUAL THERAPY**
- A1C is ≥ 10%, blood glucose is ≥ 300mg/dL, or patient is markedly symptomatic, consider **COMBINATION INJECTABLE THERAPY**.

MONOTHERAPY: METFORMIN

LIFESTYLE MANAGEMENT

Efficacy	High
Hypo Risk	Low Risk
Weight	Neutral/Loss
Side Effects	GI/Lactic Acidosis
Costs	Low

If A1C target not achieved after approximately 3 months of monotherapy, proceed to 2-drug combination (order not meant to denote any specific preference – choice dependent on a variety of patient and disease-specific factors.)

DUAL THERAPY: METFORMIN +

LIFESTYLE MANAGEMENT

	Sulfonylurea	Thiazolidine-dione	DPP-4 Inhibitor	SGLT2 Inhibitor	GLP-1 Receptor Agonist	Insulin (Basal)
Efficacy	High	High	Intermediate	Intermediate	High	Highest
Hypo Risk	Moderate Risk	Low Risk	Low Risk	Low Risk	Low Risk	High Risk
Weight	Gain	Gain	Neutral	Loss	Loss	Gain
Side Effects	Hypoglycemia	Edema, HF, fxs	Rare	GU, dehydration, fxs	GI	Hypoglycemia
Costs	Low	Low	High	High	High	High

If A1C target not achieved after approximately 3 months of monotherapy, proceed to 2-drug combination (order not meant to denote any specific preference – choice dependent on a variety of patient and disease-specific factors.)

TRIPLE THERAPY: METFORMIN +

LIFESTYLE MANAGEMENT

	Sulfonylurea +		Thiazolidine-dione +		DPP-4 Inhibitor +		SGLT2 Inhibitor +		GLP-1 Receptor Agonist +		Insulin (Basal) +
or	TZD	or	SU	or	SU	or	SU	or	SU	or	TZD
or	DPP-4-i	or	DPP-4-i	or	TZD	or	TZD	or	TZD	or	DPP-4-i
or	SGLT2-i	or	SGLT2-i	or	SGLT2-i	or	DPP-4-i	or	SGLT2-i	or	SGLT2-i
or	GLP-1-RA	or	GLP-1-RA	or	Insulin	or	GLP-1-RA	or	Insulin	or	GLP-1-RA
or	Insulin	or	Insulin								

If A1C target not achieved after approximately 3 months of triple therapy and patient (1) on oral combination, move to basal insulin or GLP-2-RA, (2) on GLP-1-RA, add basal insulin, or (3) on optimally titrated basal insulin, add GLP-1-RA or mealtime insulin. Metformin therapy should be maintained, while other oral agents may be discontinued on an individual basis to avoid unnecessarily complex or costly regimen (i.e., adding a fourth antihyperglycemic agent)

COMBINATION INJECTABLE THERAPY

LIFESTYLE MANAGEMENT

This project is supported by the Health and Resources Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under 1 U1QHP2872-01-00, Cultivating a Culture of Caring for Older Adults, for $2.5 million. This information or content and conclusions are those of the author and should not be construed as official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

UC Irvine GWEP C3OA

CULTIVATING A CULTURE OF CARING FOR OLDER ADULTS

SELECTED ORAL DIABETIC AGENTS

Drug Class/Name	MOA	AIC reduction	Clinical Pearls
Biguanine *(Metformin)*	Decreases Glucose production	Up to 2%	• Max dose 2,550 • OK to use Crcl 30-50ml/min • GI SE minimized with slow titration; Weight loss
Sulfonylureas *(Glipizide, Glimepiride, Glyburide)*	Stimulate insulin release	Up to 2%	• Low durability, Don't use Glyburide. Hypoglycemia, weight gain. Stop when insulin is started
DPP4I's	Prolong Action of endogenous Incretins, Enhancing 1st phase of insulin response	0.6–1%	• Trajenta: No renal adjustments, Weight neutral; No hypoglycemia; SE: GI, joint pain • Pancreatitis, Onglyza increases HF hospitalizations
Thiazolidinediones *(Pioglitazone, rosiglitazone)*	Insulin resistance reducers	Up to 1.5%	• Risk of heart failure, weight gain, edema, arthralgia, LFT increase. Inc HDL and Dec TG Actos may reduce risk of stroke/MI with pre-existing disease

SELECTED DIABETIC MEDICATIONS

Drug Class/Name	MOA	AIC reduction	Clinical Pearls
Meglitinides *(Nateglinide, repaglinide)*	Increase insulin secretion	0.5–1%	• Short duration of action. PRN use, weight gain, hypoglycemia
SGLT2 Inhibitors *(Canagliflozin, dapagliflozin, empagliflozin)*	Decrease glucose reabsorption from kidney And increase urinary glucose excretion	0.5–1.5%	• Weight loss, lower bp, no hypoglycemia, hyperkalemia, UTI's, mycotic genital infections, ketoacidosis. Renal dosing Possible CV benefit
α-Glucosidase Inhibitors *(Acarbose, miglitol)*	Decrease glucose absorption	Less than 0.5	• GI disturbances. Difficult to take
GLP-1 receptor agonists *(Exenatide, liraglutide, albiglutide, dulaglutide)*	Incretin mimetics	0.7–1%	• Less hypoglycemia, weight loss; Pancreatitis, thyroid cancer, injectable

This project is supported by the Health and Resources Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under 1 U1QHP2872-01-00, Cultivating a Culture of Caring for Older Adults, for $2.5 million. This information or content and conclusions are those of the author and should not be construed as official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

UC Irvine GWEP C3OA
CULTIVATING A CULTURE OF CARING FOR OLDER ADULTS

SELECTED ORAL DIABETIC AGENTS

Preparation	Onset	Peak	Duration	Doses per day
Rapid-acting Insulin glulisine *(Apidra)*	20 min	0.5–1.5 h	3–4 h	3
Insulin lispro *(Humalog)*	15 min	0.5–1.5 h	3–4 h	3
Insulin aspart *(NovoLog)*	30 min	1–3 h	3–5 h	3
Short acting insulin *(e.g., Humulin, Novolin)*	0.5–1 h	2–3 h	5–8 h	3
Intermediate-acting NPH *(e.g., Humulin, Novolin)*	1–1.5 h	4–12 h	24 h	1–2

*Insulin preparations are 100U/ml and come 10cc vials and 3cc pens
70/30 Formulations with NPH & rapid or short acting insulins

LONG-ACTING INSULIN PRODUCTS

Agent	Onset	Peak	Duration
Onset	1.1 hour	1.1 to 2 hours	Develops over 6 hours
Peak	No significant peak		
Duration	10.8 to > 24 hours	Mean 7.6 to > 24 hours	> 24 hours
Administration	SC once daily	SC once or twice daily (12hr)	SC once daily
Formulation	100 units/mL 10 ml vial, 3 ml SoloStar pen	100 units/ml 10 ml vial, 3 ml FlexTouch	300 units/ml 1.5 ml SoloStar pen
Compatibility	Do not mix with other insulins or dilute		

This project is supported by the Health and Resources Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under 1 U1QHP2872-01-00, Cultivating a Culture of Caring for Older Adults, for $2.5 million. This information or content and conclusions are those of the author and should not be construed as official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.