

Over the years with diabetes: Optimizing therapy for older adults



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During this session, we will

- Describe the unique characteristics of older adults with diabetes, with a focus on how this influences treatment and support
- List 2 key considerations for individualizing treatment of diabetes in older adults and apply to a case situation
- Suggest and discuss diabetes management considerations unique to older adults including glucose targets, nutritional support, pharmacotherapy, and education

Key consideration for the care of older adults with diabetes

- 26% of patients aged >65 have diabetes.
- Older adults have higher rates of premature death, functional disability & coexisting illnesses.
- At greater risk for polypharmacy, hypoglycemia, cognitive impairment, urinary incontinence, injurious falls & persistent pain.
- Screening for complications should be individualized and periodically revisited.
- At higher risk for depression

American Diabetes Association Standards of Medical Care in Diabetes. Older adults. Diabetes Care 2017; 40 (Suppl. 1): S99-S104

Case 1 Mrs. S.

Mrs. S., 82 year old female diagnosed with type 2 diabetes mellitus today in clinic.

PMH: hypertension, osteoporosis (history of vertebral fractures x2), chronic back pain, s/p DVT 5 years ago, depression, glaucoma, and macular degeneration with edema.

SH: Mrs. S lives alone (widowed x10 years) in an independent apartment in a retirement community.

Diet: Variable diet history with mention of appetite challenges, often grazes between meals. She reports a 24-hour food history of toast/coffee (breakfast), muffin/midmorning, fruit/half sandwich/soup (lunch), and fried chicken/potatoes/salad for dinner.

Activity: She helps with a rose garden at her retirement community because she always enjoyed gardening. Plays bridge and poker at the community center.

Case 1 Mrs. S.

Medications:

- Hydrochlorothiazide 12.5 mg daily
- Alendronate 70 mg weekly
- Calcium 500 mg TID
- Vitamin D 800 units daily
- Mirtazipine 30 mg daily
- Xalatan 0.005% 1 gtt in each eye daily in evening
- Aspirin 81 mg daily

Labs/PE today:

- fasting glucose 187 mg/dL today (162 mg/dL last month); Scr 1.1 mg/dL (eGFR 46 ml/min); BUN 26 mg/dL; A1C 8.1%; Total Cholesterol 208 mg/dL, LDL 128 mg/dL, HDL 48 mg/dL; other labs WNL
- Wt: 166 lbs; Ht 5'4"; BP 158/88 mmHg; P 82; PHQ-9: 14; back pain 3/10 resting

Case 1 Summary Mrs. S.

Past Medical History:

- hypertension, osteoporosis (history of vertebral fractures x2), chronic back pain, s/p DVT 5 years ago, depression, glaucoma, and macular degeneration with edema

PE:

Wt: 166 lbs; Ht 5'4"; BP 158/88 mmHg; HR 82; Total Cholesterol 208 mg/dL, LDL 128 mg/dL, HDL 48 mg/dL; other labs WNL, PHQ-9: 14; back pain 3/10 resting

Labs:

A1C 8.1%; Scr 1.1; eGFR 46 ml/min

Glucose:

Blood glucose: fasting 187 mg/dL today, 162 mg/dL last month

Current Medications

- Hydrochlorothiazide 12.5 mg daily
- Alendronate 70 mg weekly
- Calcium 500 mg TID
- Vitamin D 800 units daily
- Mirtazipine 30 mg daily
- Xalatan 0.005% 1 gtt in each eye daily in evening
- Aspirin 81 mg daily

Other info -

- Lives alone, widowed, retirement community
- Activities: gardening, poker, bridge
- Variable diet, grazes

Older Adults in Long Term Care Settings

	Special considerations	Rationale	A ₁ C	Fasting and pre-meal BG targets	Glucose monitoring
Community Dwelling Patients at SNF for short rehabilitation Patients residing in LTC	-Rehabilitation potential -Goal to discharge home -Limited life expectancy -Frequent changes in health impacting glucose levels	-Need optimal glycemic control after recent acute illness -Limited benefits of intensive glycemic control -Focus on better quality of life	-Avoid relying on A ₁ C -Follow current glucose trends -<8.5% caution in interpreting A ₁ C due to presence of many conditions that interfere with A ₁ C levels	100-200 mg/dl 100-200 mg/dl	Monitoring frequency based on complexity of regimen Monitoring frequency based on complexity of regimen and risk of hypoglycemia
Patients at end of life	-Avoid invasive diagnostic or therapeutic procedures that have little benefit	No benefit of glycemic control except avoiding symptomatic hyperglycemia	No role of A ₁ C	Avoid symptomatic hyperglycemia	Monitoring periodically only to avoid symptomatic hyperglycemia

Diabetes Care 2015;38:308-318

Antihyperglycemic Therapy in T2DM

American Diabetes Association
Standards of Medical Care in Diabetes
Approaches to glycemic treatment
Diabetes Care 2017; 40 (Suppl. 1): S64-S74

Start with Monotherapy unless:

- A₁C is higher than or near to the individualized target
- A₁C is higher than or near to the individualized target, there is a history of hypoglycemia, or patient is already symptomatic, consider Combination Insulin Therapy (See Figure 8.2).

Monotherapy	Metformin	Lifestyle Management
<p>GLP-1RA liraglutide, semaglutide</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p>	<p>GLP-1RA liraglutide, semaglutide</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p>	<p>GLP-1RA liraglutide, semaglutide</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p> <p>INSULIN basal insulin</p>

Dual Therapy Metformin +

Subcategory	Subcategory	Subcategory	Subcategory	Subcategory	Subcategory	Subcategory
GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN

Triple Therapy Metformin +

Subcategory	Subcategory	Subcategory	Subcategory	Subcategory	Subcategory	Subcategory
GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA	GLP-1RA
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN
INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN	INSULIN

Combination Injectable Therapy (See Figure 8.2)

Predisposing and Precipitating Risk Factors for Hypoglycemia

Predisposing Factors (Predictors)	<ul style="list-style-type: none"> Age Body weight Duration of disease History of severe hypoglycemia Use of SUs Insulin intake CKD Chronic liver disease Hypoglycemic unawareness/diminished counterregulatory response Cognitive impairment
Precipitating Factors (Potentiating)	<ul style="list-style-type: none"> Antidiabetic agents (eg, SUs, meglitinides, insulin) Potentiators of SUs Potentiators of hypoglycemia (eg, ACEIs) Overmedication Missed, delayed, or reduced meals Alcohol intake Acute illness (poor intake) Addison's disease Increased exercise Gastroparesis

ACEIs = angiotensin-converting enzyme inhibitors, SU = sulfonylureas. Alagakrishnan K et al. Postgrad Med. 2019;32(3):129-137.

Case 2
Mr. H

- Mr. H is an 83 year old Caucasian male here for his initial diabetes self-management education visit
- **HPI:** Type 2 DM x 9 yrs; Unintentional weight loss of 15 lbs in 4 months; Feels "woozy and dizzy" several times a week; he fell about two weeks ago, but did not go to the doctor. Mr. H states he has been on his current medicines "a long time".
 - **PMH:** dilated cardiomyopathy (etiology congenital), dyslipidemia, hypertension, neuropathy (feet), Stage 3B CKD, allergic rhinitis
 - **SH:** Mr. H's wife passed away a year ago and he recently moved from out of state to live with his adult son locally. He is alone during the day. Performs own ADLs. Short term memory deficit exhibited during session, no previous documentation in medical record.

Case 2
Mr. H

- **Food history** - a large bowl of cereal in am; snacks dry cereal and dried or fresh fruit, sandwich or soup for lunch – both meals on his own, son prepares dinner - lean meat, chicken, or fish, salad, frozen vegetable mix. His son states he is eating better now that he is living with him.
- Walking on treadmill 10 minutes daily. Pain in his feet "pins and needles" prevent him from walking more, but he would like to increase his activity. Planning a trip to visit his sisters out of state.
- Non-smoker, denies use of illicit drugs; rarely drinks alcohol - 1 to 2 drinks per year.
- Takes medications as prescribed – uses pill organizer.

Case 2
Summary:
Mr. H

- **Past Medical History:**
 - Hypertension
 - Dyslipidemia
 - Dilated cardiomyopathy
 - Neuropathy
 - Stage 3 CKD
 - Allergic rhinitis
 - **Current Medications**
 - Glyburide 5 mg twice daily
 - Metformin 500 mg twice daily
 - Furosemide 20 mg one tablet every other day
 - Metoprolol XL 100 mg daily
 - Lisinopril 5 mg daily
 - Acetaminophen 500 mg PRN
 - Multivitamin one tablet daily
 - Fish Oil (Omega-3 Fatty Acids) two capsules twice daily
 - Cetirizine 10 mg daily
 - Flonase 2 sprays in each nostril once daily during pollen season
 - **Other info**
 - Wants to live to 100 yrs
- PE:**
Wt: 136 lbs; Ht: 5' 10"; BMI 19.5;
BP 122/72; Pulse 63; PHQ-9 3;
PAIN 2/10
- Labs (today):**
A1C 5.9%; Gluc 81; Scr 1.48; eGFR 42
- Glucose:**
Blood glucose logbook (14 days):
Pre-Meal range (N = 10) 64 to 105 mg/dL
2 hours after dinner (N=14): 70 to 150 mg/dL

Mr. H's
Logbook this
week

Day	Pre-breakfast	Pre-lunch	Pre-dinner	Bedtime
Monday	98	100	78	
Tuesday	102			
Wednesday	77		64	150
Thursday	88			
Friday		105		70
Saturday	97			
Sunday		92	74	89

Questions
to consider
Mr. H

- What are the goals for control of Mr. H's diabetes?
- What individual parameters influence your choice treatment (medications, nutrition, physical activity), based on his case history?
- What frequency of hypoglycemia raises a red flag?
- What is the most appropriate next phase in the management plan for his diabetes given his age, physical status, and current personal goals?

Diabetes Meal
Planning
Considerations
Older Adults

- Personal goals
- Personal food preferences (cultural or ethnic food preferences)
- Functional and cognitive abilities
- Those with long-standing diabetes may follow sucrose restrictive eating pattern



Resources for Older Adults with Diabetes



www.YourDiabetesInfo.org/OlderAdults

<https://www.niddk.nih.gov/health-information/health-communication-programs/ndep/living-with-diabetes/older-adults/Pages/index.aspx>

Summary of Treatment Considerations

Diabetes Care 2014;37(5):549-555

- Lifestyle is always key – movement and healthy nutrition make a difference
- Consider treatment burden, \$, functional status - for patient & caregivers when considering each step
- Caution for safety during transitions of care
- Medications
 - Metformin is first-line med, however, consider dose adjustment for CKD; contraindication for GFR <30 ml/min
 - Glyburide: avoid due to hypoglycemia risks
- Regularly assess patients for & educate about hypoglycemia
 - Ask patients and caregivers about signs/symptoms
 - Review blood glucose logs

Kirkman MS et al. Diabetes Care. 2013;35(2):269-266.
