

Managing Diabetes in Older Patients: What's New? What You Need to Know

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What You Need to Know



Faculty Disclosure

- **Faculty:** Dr. Rob Silver
- **Relationships with commercial interests:**
None

Learning Objectives

1. When should we screen for diabetes in the elderly?
2. What are the current treatment targets?
3. How does frailty and/or cognitive impairment affect our goals of therapy?.

Q: How common is diabetes in the elderly?

A: 25%.

Estimated 50% with Pre-Diabetes

Why ?

- **Obesity**
- **Inactivity**
- **Decreased muscle mass**
- **Co-morbid illness**
- **Diet**
- **Medications**
- **Beta cell senescence?**

Mechanisms of Age-Related Glucose Intolerance

- **Delayed glucose-induced insulin secretion**
- **Impaired insulin suppression of HGO**
- **Impaired insulin-mediated muscle glucose uptake**
- **Decreased number of glucose transporters**

Diabetes Care (11) Supp 2;9-19,1990

Screening for Diabetes in the Elderly

- **Progressive Rise in FBS and HgbA1C with Aging**
Diabetes 36:523-34,1987
Diabetes Care 31(10):2008
- **Discordance between FPG and A1C based Dx**
JCEM 95:5289-95, 2010
- **Recommended Screening with both a FBS and HgbA1C**
- **Screening unlikely to be beneficial for people > 80.**

Screening of the Healthy Elderly

- **Age > 40 years**
- **First-degree relative with Type 2 DM**
- **Member of high-risk population**
- **History of pre-diabetes**
- **History of GDM**
- **Presence of DM complications**
- **Presence of vascular risk factors**
- **Associated diseases- PCOS, HIV, OSA, Psychiatric disorders, Acanthosis nigricans**
- **Medications associated with DM**

Screening of the Frail Elderly

In the absence of positive intervention studies on morbidity or mortality in this population, the decision about screening for diabetes should be made on an individual basis.

**Canadian Journal of Diabetes- 37:3 June, 2013
Canadian Journal of Diabetes- 2018**

All of the following statements
are false, except:

A. Diabetes and prediabetes may affect up to 50-75% of persons more than age 65.

B. Insulin resistance is a characteristic of the elderly.

C. Type 1 diabetes is never seen in the elderly.

D. Reduced muscle glucose transport accounts for the majority of IGT in the elderly.

Current Treatment Targets

- Same glycemic targets for the healthy elderly as for younger people with diabetes.

- Intensive control reduces microvascular, though not macrovascular risk or mortality.

NEJM 358:2545-59, 2008

- Associated with less disability and better function
Diabetes Care 33:1055-60, 2010

- PC BG a better predictor than AC BG or A1C

- BG variability associated with worse cognition
Diabetes Care 33:2169-74, 2010

Current Treatment Targets

- **Aging is a risk factor for severe hypoglycemia with intensive therapy. BMJ 340:b5444, 2010**
- **Asymptomatic hypoglycemia frequent in this group Arch Intern Med 171:362-64, 2011**
- **Cognitive dysfunction is a significant risk factor. Diabetologia 52:2328-36, 2009**
- **Prevent hypoglycemia as much as possible.**

Current Treatment Targets

- **Use of SMBG and CGM
(OHA's and Insulin)**

- **Nutrition Education**

Prev Med 34:252-59, 2002

- **Resistance Training**

Diabetes Care 25:1729-36, 2002

| | Functionally Independent | Functionally Dependent | Frail/Dementia | End of Life |
|----------------------|---------------------------------|-------------------------------|-----------------------|--|
| Frailty Index | 1-3 | 4-5 | 6-8 | 9 |
| A1c Target | <7.0 | <8.0 | <8.5 | A1c not recommended. Avoid symptomatic hyperglycemia. No hypoglycemia |
| CBGM | | | | |
| Preprandial | 4-7 | 5-8 | 6-9 | Individualized |
| Postprandial | 5-10 | <12 | <14 | |

Oral Antihyperglycemic Agents

- Obese elderly- **Metformin**- no randomized trial evidence in the elderly.
- Alpha-glucosidase inhibitors**- modestly effective, but intolerable for many.
- TZD's**- effectively abandoned, with increased risk of CHF as well as increased fracture risk in women.
- Sulfonylureas**- risk of severe hypoglycemia increases with age. **Gliclazide** safer than **Glyburide**.
- (DPP)-4 inhibitors**- less hypoglycemia and wt. gain.

Additional Antihyperglycemic Agents

- **GLP-1 Receptor Agonists** - Efficacy independent of age
 - Well tolerated...similar side effect profile
 - Low risk of hypoglycemia
 - Liraglutide and Semaglutide reduce CV outcomes in older people with DM and pre-existing CV disease

NEJM 375:1834-44, 2016
- **SGLT-2 Inhibitors**
 - Studies in individuals without complex co-morbidities
 - Less effective due to lower eGFR
 - More prone to dehydration and fractures
 - Empagliflozin- positive impact on both CV and renal outcomes

Insulin Therapy

- Should be individualized for patient safety.
- Predictive value of clock drawing test.

CJD 29:102-04, 2005

•Premixed insulins and prefilled insulin pens minimize dosing errors.

•Premixed insulin analogues result in equivalent BG control to basal-bolus regimens.

Japan Clin Drug Invest 30:35-40, 2010

•Addition of **Glargine** to oral agents- effective and safer compared to escalation of OHA's.

Acta Diabetol 45:53-59, 2008

Insulin Therapy

- Switching from multi-dose to **once daily Glargine** results in equivalent BG control with less hypoglycemia
JAMA 176:1023-26, 2016
- **Glargine U-300 (Toujeo)** – lower risk of hypoglycemia than Glargine U-100
Diabetes Obes Metab 17:859-67, 2015
- **Insulin Degludec**- less nocturnal hypos than Glargine U-100
Diabetes Aging 30:1009-18, 2013

Which of the following is a false statement?

A. Glycemic targets for the healthy elderly should be similar to younger people with diabetes.

B. Glargine should not be used in the elderly because of cancer risk.

C. Metformin should not be used with a $GFR < 30$.

D. Resistance training may improve BG control, strength and mobility.

Summary and Conclusions

1. **Healthy elderly people should achieve the same glycemic control as younger people with diabetes.**
2. **In the frail elderly, HgbA1C < 8.5%, AC BG of <10 PC BG <14. Avoiding Hypos takes priority.**
3. **With cognitive impairment, strictly avoid hypoglycemia.**
4. **Aerobic exercise and/or resistance training will improve BG control.**
5. **Use Sulfonylureas with caution.....Gliclazide instead of Glyburide. May consider DPP-4 inhibitors.**

Summary and Conclusions

- 6. With clinical CVD and an eGFR >30, an antihyperglycemic agent with proven CV outcome benefit may be used.**
- 7. Detemir, Glargine, Toujeo and Degludec may be used instead of NPH or 30/70 to reduce the risk of hypoglycemia.**
- 8. Premixed insulins and prefilled insulin pens are preferable to manual mixing of insulin to reduce dosing errors.**
- 9. The clock drawing test has predictive value regarding difficulty learning to inject insulin.**
- 10. In LTC, regular diets may be used instead of “diabetic” diets or nutritional formulas.**

Which of the following is a true statement?

A. Diabetic ketoacidosis is seen more frequently in the elderly.

B. Tighter glycemic control reduces the risk of myocardial infarction in the elderly.

C. HgbA1C never should be less than 8.5% in the elderly patient with diabetes.

D. Insulin resistance in the elderly may be due to impaired insulin suppression of HGO.

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