Guidelines for treatment of Diabetes in the elderly

Students' State of the Art Lectures
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Diabetes treatment in the elderly

… is an **individual** decision

Target blood sugar (or HbA1c) levels depend on patient's:

- age
- feeling of well-being
- functional status
- life expectancy

Diabetes treatment in the elderly

Chronological old diabetics, free of other major comorbidities and without functional impairments

Therapy goals and diabetes schooling are the same as by the younger patients

Target therapy:
HbA1c: 6.5% - 7.5%
Fasting glucose: 5 - 7.0 mmol/l

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Diabetes treatment in the elderly

Multimorbide, frail, geriatric diabetics

- Have already diabetic complications
- Impaired functional status
- Reduced expectancy of life

Therapy goals:

- Minimize the risk of hypoglycemia and metabolic decompensation
- Improvement or preservation of Quality of Life

Target therapy:
HbA1c: >7.5% - =8.5%
Fasting glucose: >7 - =9 mmol/l

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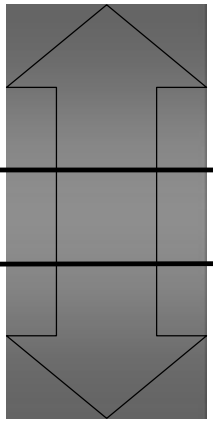
Aims of Diabetes Treatment



HbA1c	BG (mg/dl)	
11	270	
10	240	
9	210	**Diabetes symptoms**
8	180	**Geriatric Target zone**
7	150	
6	120	**Prevention of Microangiopathy**
5	90	
4	60	**Note: Hypoglycemia risk**

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Problem areas of geriatric diabetics

Geriatric syndromes

- Geriatric "Is" (Immobility, Incontinence, Intellectual deficits, Instability)
- Frailty
- Sarcopenia and Malnutrition

+ Diabetes

- Depression[1]
- Dementia[1]
- Sense organs impairments
- Falls[2]
- Decubitus
- Urinary tract infections
- Renal impairment
- Anorexia
- Fatigue

[1] Anderson RJ et al, 2001
[2] Nelson JM et al, 2007

Problem areas of geriatric diabetics

Dementia: Deficits on

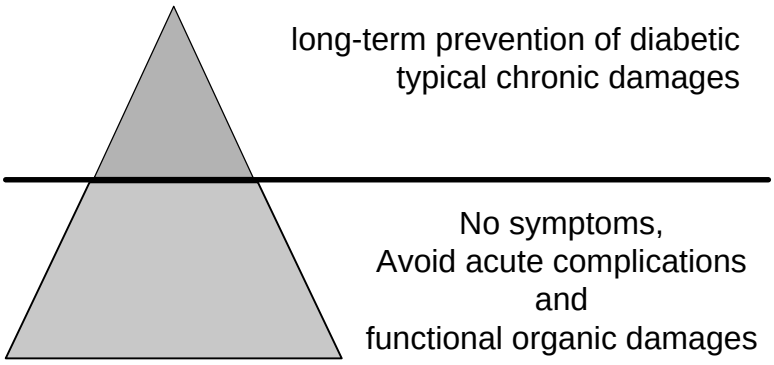
- Schooling, self management
- Control (blood pressure, sugar, woods)

Depression: - Incompliance*

- "Pseudodementia"

*Gavard JA et al, 1993; Ciechanowski PS et al, 2000

Aims of Diabetes Treatment in Elderly



Management of Diabetes therapy in age

Education

Nutrition

Exercise

Drugs

Diagnosis and Treatment
of geriatric syndromes

Management of Diabetes therapy in age

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Management of Diabetes therapy in age

Education

- Older people with diabetes lack fundamental, diabetes relevant knowledge, especially about symptoms of hypoglycemia (Thomson FJ et al, 1991, Mutch WJ et al, 1985)
- Geriatric patients can be educated on diabetes (Stelzl et al, 1999)
- Also cognitively impaired patients benefit from especially adapted educational programs (Braun A et al, 2003)

Recom.: Promote educational courses for geriatric diabetics with mildly cognitive impairments, incl. family members

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Diagnosis and Treatment of geriatric syndromes

Management of Diabetes therapy in age

Nutrition

Recom.: Balanced, varied diet adapted to patient's needs

Special “diabetes diets” are not recommended*

Note: 1. Quality of Life
2. Prevent malnutrition and sarcopenia

In older type II diabetic patients, a moderate excess weight predicts a better survival (RR=0.74, CI 95%=0.62-0.90), while obesity is a negative prognostic factor in patients younger than 65 y (Zoppini G et al. 2003)

*EB-Guidelines of GDA and GGS (2006)

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Management of Diabetes therapy in age

Exercise

- positive effect on cardiovascular system, balance, steadiness and psychological well being (reduction of fear, depression and sleeplessness, bone density improvement) (Horowitz M et al, 1996, van den Berghe G et al, 2001)
- Did not lead to a significant improvement in blood glucose levels in older diabetics (Skarfors ET et al, 1987)
- An intensive exercise program is not feasible for many older diabetics (Skarfors ET et al, 1987)

Recom.: Promote physical exercise ("every exercise is better than no exercise")

Management of Diabetes therapy in age

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Management of Diabetes therapy in age

Drug therapy

- Oral antidiabetics
- Insulin

Management of Diabetes therapy in age

Drug therapy

- Oral antidiabetics
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Oral Antidiabetics in the Elderly

Metformin

Ind.: - overweight **older adults** with type 2 diabetes (BMI > 25.0 Kg/m²)
- in combination to insulin secretagogue in normal/ overweight patients (BMI = 22.0 Kg/m²)

Contraind.: - renal impairment (GFR < 60 ml/min)
- severe vascular disease (coronary, cerebro-vascular or pVD)

Advantage: No hypoglycemia!

Side effects: Lactic acidosis (?)

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Oral Antidiabetics in the Elderly

Metformin

No evidence to date that metformin therapy is associated with an increased risk of lactic acidosis or with increased levels of lactate compared with other antihyperglycemic treatments if the drugs are prescribed under study conditions, taking into account contraindications.
Salpeter SR et al. (2003)

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Drug treatment of Diabetes in Elderly

Sulphonylureas (Insulin secretagogues)

Ind.: In those cases where metformin is contraindicated or not tolerated, an insulin secretagogue may be prescribed

Contraind.: **Typ 1 Diabetes**
Severe renal insufficiency (GFR<30 ml/min)

Side effects: Hypoglycemia (severe: 1.4 %, UKPDS 33)
weight gain

Note: Glibenclamide **should not be prescribed for newly diagnosed cases** of type 2 diabetes in older adults **(>70 years)** because of the marked risk of hypoglycemia.

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Drug treatment of Diabetes in Elderly

Thiazolidinedione (insulin sensitizers)

Ind.: - Monotherapy (when patients are unable to take an insulin secretagogue or metformin)

- in combination with metformin or an insulin secretagogue

Adv.: No hypoglycemia

Contraind.: heard fealure **(NYHA I-IV),** Severe renal insufficiency (GFR<30 ml/min), **insulin therapy**

Disadv: - approx. 25% non-responders
- higher fracture rates
- higher risk for heard infarction

Drug treatment of Diabetes in Elderly

Alpha-glucosidase inhibitors

Ind.: Alpha-glucosidase inhibitors can be used to lower postprandial blood glucose when other therapies are not tolerated

Contraind.: chronic intestinal inflammation disease
severe renal insufficiency (GFR<25 ml/min)

Advantage: no hypoglycemia

Side effects: gastrointestinal

Management of Diabetes therapy in age

Drug therapy

- Oral antidiabetics
- Insulin

Insulin Therapy in the Elderly

Ind.: When oral agents fail to lower glucose levels adequately, Insulin as monotherapy (with dietary treatment) or in combination with a Sulphonylurea or Metformin (HbA1c > 8%)

Rec.: The use of **pre-mixed insulin (NPH-insulin)** and **pre-filled insulin pens** may lead to a reduction in dosage errors and an improvement in glycemic control

Adv.: - Less complexity (more compliance)
- Less expense and less costs

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Combination of **insulin** and **oral antidiabetics** in the elderly

The combination of insulin and oral antidiabetic drugs is also permitted for older diabetics.

The advantages of such a regimen in contrast to a twice daily insulin injection have not been demonstrated

EB-Guidelines of GDA and GGS, 2006

Management of Diabetes therapy in age

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Drugs

Diagnosis and Treatment
of geriatric syndromes

Specific Recommendations on Diabetes Therapy in age

Diagnose and treatment of geriatric syndromes

1. **Depression**

   Treatment of depression may increase the proportion of subjects with good glycemic control by 40%
   (Lustman PJ et al, 2000)

2. **Dementia**

3. **Diabetic associated diseases** (e.g. Decubitus, visual impairment, hypertension etc.)

Take home message

- **Diabetes Therapy in age is an Individual Therapy**
- **Therapy Aims of geriatric diabetics:**
  - Improvement or preservation of Quality of Life
  - Avoid symptoms (e.g. hypoglycemia)
  - Acceptance of treatment
- **Therapy Recommendations of geriatric diabetics:**
  - Educational programs / physical exercise
  - Diagnose and treat geriatric symptoms
  - Oral antidiabetics: prefer Metformin (note: contraind.)
  - Insulin: prefer Pre-mixed Insulin (2 x day)

Diabetes Guidelines

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http://www.eugms.org

German Diabetes Association
& German Geriatric Society

http://www.dggeriatrie.de/download/LeitlinieDiabetes2005.pdf