Health status and glycaemic control in geriatric patients with type 2 diabetes mellitus

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Background and Aims

Up to 25% of people older than 70 years suffer from type-2-diabetes. Diabetes guidelines emphasize the need to individualize glycaemic goals and to simplify treatment strategies with the main focus on avoiding hypoglycaemia in geriatric patients. The aim of this study was to assess glycaemic control in patients with type-2-diabetes in geriatric care facilities based on the individual health status.

Method

170 medical records of geriatric patients with type-2-diabetes in 4 geriatric care facilities (64.7% female, age 80±9 years, HbA1c 51±16 mmol/mol, BMI 27.9±5.8 kg/m2) were retrospectively assessed. Based on the individual health status, patients were allocated to three groups (healthy n=27, complex n=86, poor n=57).

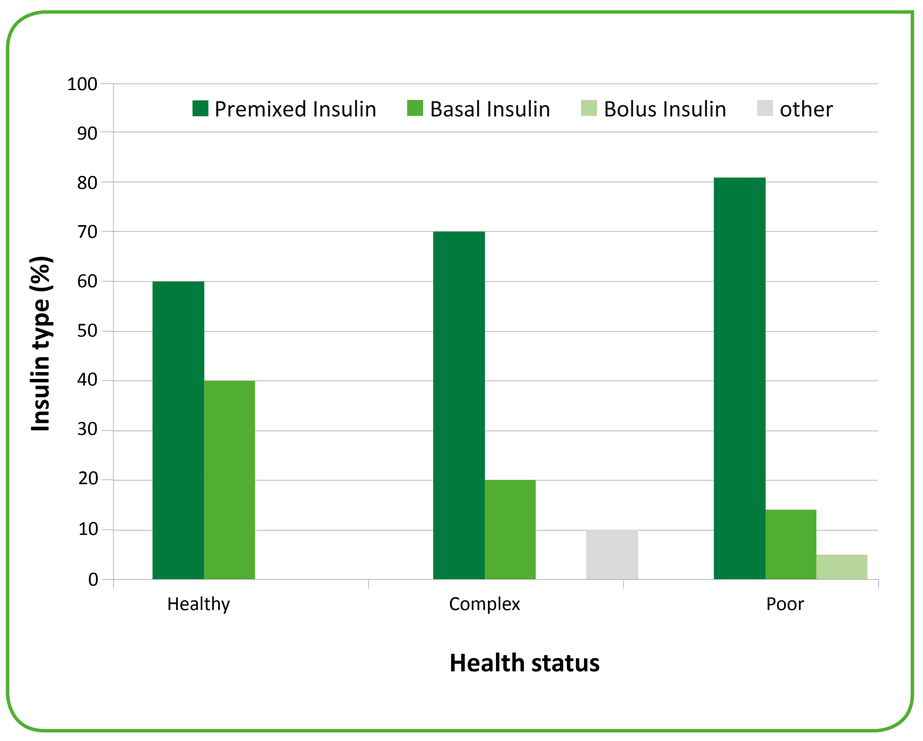

Figure 1: *Distribution of insulin therapy types according to health status*

Table 1: *Clinical characteristics of patients according to health status*

Patient groups	Healthy (n=27)	Complex (n=86)	Poor (n=57)
Gender, female (n / %)	19 / 70.4	55 / 64	36 / 63.2
Age (years)	77 ± 9	80 ± 9	80 ± 9
Body Mass Index (kg/m²)	30.6 ± 6.8	27.5 ± 5.9	27.1 ± 4.9
Serum creatinine (mg/dl)	0.9 ± 0.3	1.3 ± 0.9	1.2 ± 0.6
Comorbidities (n / %) Cardiovascular Disease Renal Disease Dementia	 25 / 92.6 9 / 33.3 1 / 3.7	 78 / 90.7 40 / 46.5 14 / 16.3	 57 / 100 21 / 36.8 21 / 36.8
Number of drugs per day (n)	9.3 ± 4.3	10.4 ± 3.1	8.9 ± 3.4

Mean ± Standard deviation

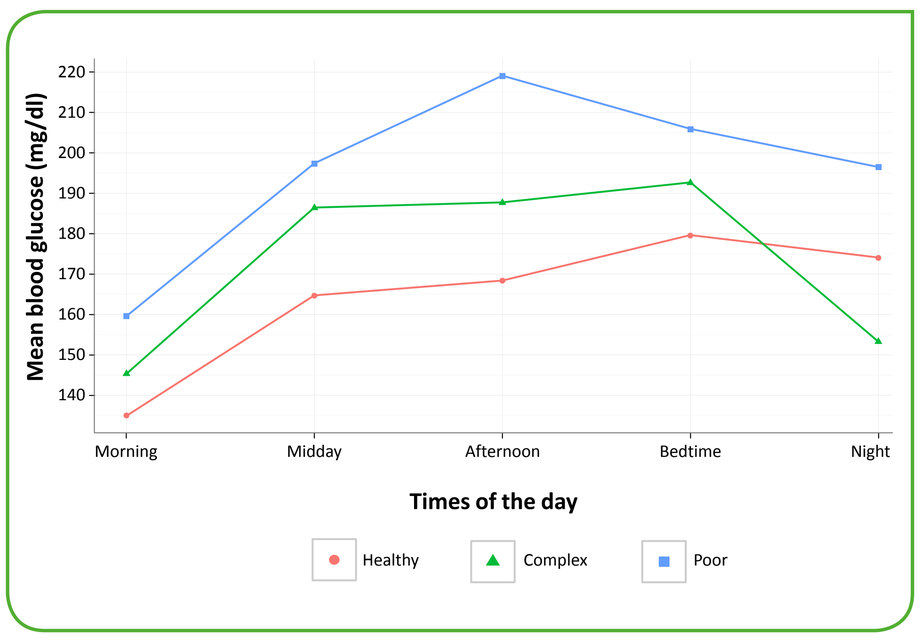

Figure 2: *Overall mean BG values at different times of the day according to health status*

Results

The overall blood glucose (BG) value was highest in the poor health group with 10.4±2.6 mmol/l (poor) vs. 9.3±2.3 mmol/l (complex) vs. 8.3±1.9 mmol/l (healthy). 1.6% (poor) vs. 2.8% (complex) vs. 1.4% (healthy) of all BG values were below 90 mg/dl. 37.2% (poor) vs. 23.4% (complex) vs. 18.5% (healthy) received insulin as the main diabetes therapy, but only 14.3% (poor) vs. 30% (complex) vs. 40% (healthy) were treated with basal insulin.

Table 2: *Glycaemic control according to health status*

Patient groups	Healthy (n=27)	Complex (n=86)	Poor (n=57)
HbA1c (%)	6.2 ± 3.2	7.1 ± 3.9	6.7 ± 3.3
Overall BG (mg/dl)	150 ± 34	167 ± 42	188 ± 47
Morning BG (mg/dl)	135 ± 32	145 ± 39	160 ± 43
Fasting BG in target range* (%)	37.4	44.6	42.2
BGs ≤ 90 mg/dl (n / %)	8 / 1.4	64 / 2.8	28 / 1.6
Main diabetes therapy (n / %) No medication/diet OADs only Insulin only OAD + Insulin	 8 / 29.6 14 / 51.9 3 / 11.1 2 / 7.4	 27 / 31.4 39 / 45.2 11 / 12.8 9 / 10.6	 18 / 31.6 18 / 31.6 11 / 19.3 10 / 17.5

Mean ± Standard deviation

*ADA FBG target: healthy 90–130 mg/dl, complex 90–150 mg/dl, poor 100–180 mg/dl

Figure 3: *BG values ≤ 90 mg/dl (n=100) according to health status*

Conclusion

Overall BG values were higher in the poor and complex group. There were few low BG values in all groups. Although recommended by international guidelines basal insulin therapy with its low complexity and low hypoglycaemic risk is still underused, especially in the poor-health group. Therefore the individualization of diabetes therapy is an issue, which could be solved in part by implementing electronical decision-support-systems considering geriatric needs.

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