Trends in incidence, prevalence and management of type 2 diabetes in Hungary from 2001 to 2014

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Background and Aims

Type 2 diabetes mellitus (T2DM) is an increasing public health concern worldwide. Recently, the newly available antidiabetic drugs have started to influence the pharmacological treatment practice of T2DM. Until now, database analysis regarding T2DM was not performed in Hungary.

The aim of the study was to analyze the trends in annual incidence and prevalence of registered patients with T2DM in Hungary between 2001 and 2014. In addition, the prescribing patterns of glucose-lowering drugs for T2DM were also assessed.

Methods

We analyzed all purchases of prescribed glucose-lowering drugs in pharmacies nationwide using databases of the National Health Insurance Fund. Annual incidence and prevalence of registered T2DM patients with antidiabetic treatment were evaluated. Patients with type 1 diabetes or gestational diabetes were excluded. Data from 2001 to 2014 were evaluated (data from 2000 were used only for assessing prevalence in 2001).

Incidence of T2DM: Number of newly recorded T2DM cases in every calendar year in the database.

Prevalence of T2DM: Number of all 2TDM cases in every calendar year (patients having T2DM from previous years and those who were first recorded as having T2DM in the respective year).

Prescribing rates of different classes of antidiabetic drugs (including combinations) were calculated and compared yearly. Only the most relevant/frequent monotherapies and combinations are presented.

Incidence of T2DM in Hungary between 2001 and 2014

Figure 1.

Prevalence rate of T2DM in Hungary between 2001 and 2014

Figure 2.

Prevalence of T2DM in Hungary between 2001 and 2014

Figure 3.

Gender distribution among newly diagnosed T2DM patients in 2014

Figure 4.

Age distribution of T2DM patients in Hungary between 2001 and 2014

Figure 5.

Proportion of T2DM patients in the total population of Hungary (data from 2011)

Figure 6.

Changes in therapeutic patterns among T2DM patients in Hungary between 2001 and 2014

Figure 7.

Changes in initial antidiabetic treatment of T2DM patients in Hungary between 2001 and 2014

Figure 8.

Table 1. Numbers of T2DM patients with first use of different antidiabetic classes (in monotherapy or in combination) in 2014

MET monotherapy or in combination			SU monotherapy or in combination			Insulin monotherapy or in combination			GLP1 monotherapy or in combination			DPP4 monotherapy or in combination		
2014			2014			2014			2014			2014		
Total	40,319	100%	Total	19,075	100%	Total	13,976	100%	Total	4,996	100%	Total	20,362	100%
MET	29,790	74%	SU	9,901	52%	INSULIN	5,436	39%	GLP1+MET	1,318	26%	DPP4+MET	8,997	44%
MET+SU	5,828	14%	MET+SU	6,573	34%	INSULIN+MET	2,034	15%	GLP1	901	18%	DPP4+MET+SU	6,412	31%
DPP4+MET	2,162	5%	DPP4+MET+SU	1,567	8%	INSULIN+SU	2,002	14%	GLP1+MET+SU	848	17%	DPP4+SU	2,275	11%
INSULIN+MET	1,104	3%	DPP4+SU	360	2%	INSULIN+MET+SU	1,777	13%	GLP1+SU	508	10%	DPP4	1,509	7%
DPP4+MET+SU	809	2%	INSULIN+SU	182	1%	DPP4+INSULIN+MET+SU	920	7%	DPP4+GLP1+MET+SU	449	9%	DPP4+INSULIN+MET	209	1%
INSULIN+MET+SU	168	0%	INSULIN+MET+SU	155	1%	DPP4+INSULIN+MET	542	4%	DPP4+GLP1+MET	438	9%	AGI+DPP4+MET+SU	186	1%
Others	458	1%	Others	337	2%	Others	1,265	9%	Others	534	11%	Others	774	4%

MET: metformin, SU: sulfonylurea, GLP1: GLP1-mimetics, DPP4: DPP4-inhibitors, AGI: alfa-glucosidase-inhibitor (acarbose)

Results

- The number of patients with newly diagnosed T2DM decreased from 75,700 (2001) to 33,700 (2014), while prevalent T2DM cases continuously increased from 423,000 (in 2001) and plateaued in 2014 with a number of registered patients of 727,000. The standardized prevalence rate of T2DM increased from 4.2% to 6.4% in the investigated period (Fig. 1-2-3).
- Among patients a female dominance (52.7%) was observed (Fig. 4).
- The prevalence rate of T2DM increased with increasing age; data of age distribution indicated that the proportion of elderly patients became more prominent over time (Fig. 5).
- In 2011, the prevalence rate of T2DM among the total population (10.0 million inhabitants of Hungary) was 19% in subjects with age of 60-70 years and 20% in subjects of age >70 years (Fig. 6).
- Sulfonylurea-monotherapy decreased from 64% to 35% while metformin-monotherapy increased from 19% to 42% in this period (Fig. 7).
- The most frequently used drug at first treatment initiation was metformin (66%) and sulfonylurea (16%) as monotherapy in 2014 (Fig. 8). DPP4-inhibitors were newly administered in 20,362 cases while GLP1-mimetics were newly used by 4,996 patients in 2014 (Table 1).
- Five years later after initiating sulfonylurea therapy between 2010 and 2014, metformin was more frequently used as second drug (39%) than sulfonylurea in patients with previous metformin treatment (23%) (Fig. 9-10).

Appearance of second antihyperglycaemic drug after initial sulfonylurea-therapy in 2010-2014

Figure 9.

Appearance of second antihyperglycaemic drug after initial metformin-therapy in 2010-2014

Figure 10.

Conclusions

Although the incidence of T2DM decreased, a significant increase in the number of prevalent cases of T2DM was observed from 2001 to 2014, probably due to better care and longer survival of patients with T2DM.

The prescribing patterns of glucose-lowering drugs have changed over time in accordance with new guidelines.