PCR234

THE BURDEN OF MIGRAINE IN CZECH REPUBLIC: PATIENT, PAYER, AND SOCIETAL PERSPECTIVE

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Value Outcomes

Background

Migraine is a complex neurological disorder characterised by the occurrence of frequent headaches of moderate or severe intensity, lasting 4–72 hours and accompanied by other neurological symptoms (e.g., stomach upset, vomiting, increased sensitivity to light or sound). Based on the frequency of attacks per month (monthly migraine days – MMD) migraine can be divided into episodic migraine (1–14 MMD) and chronic migraine (≥15 MMD) (1,2).

Migraine has a significant impact on patient's quality of life (QoL). An increase in the frequency of MMD is correlated with a higher risk of other comorbidities such as chronic pain, anxiety, depression, and obesity. It also has a profound effect on work productivity and influences the ability to enjoy leisure and social activities or to care for a family. Since migraine does not have a significant impact on mortality, individuals suffering from migraine often face many years lived with disability (YLD). Moreover, in the 2019 Global Burden of Disease study, migraine was the second disease worldwide to generate the most disability-adjusted life years (DALYs); in the subgroup of women in the age of 15–49, it was the first most burdening disease (1,2).

In recent years, several international cross-sectional studies have been conducted to examine the impact of migraine on patients and society (3–7). In the Czech Republic, however, this evidence has been lacking so far.

Objectives

In 2022, a patient survey on the impact of migraine in the Czech Republic was conducted in collaboration with patient organization Migraine Help. It was the first survey of its kind to be carried out on migraine in the Czech Republic. The main aim was to quantify the socioeconomic burden of migraine in the Czech Republic from the patient's, payer's and societal perspectives and provide a brief comparison of these results with the existing global evidence.

Methods

Data were collected directly from patients in a cross-sectional survey from September to November 2022. The target population consisted of patients with at least 4 migraine days per month, which is one of the currently used indication criteria of reimbursement for prophylactic targeted therapy in specialized treatment centres. Sociodemographic, clinical and economic data, as well as information from standardized questionnaires were collected.

The impact of migraine on everyday activities was assessed using Migraine Physical Function Impact Diary (MPFID). It is a 13-item self-report questionnaire measuring the effect of migraine on daily activities in the past 24 hours, where domain scores are transformed into an interval ranging from 0 (no impact) to 100 (greatest impact). Headache Impact Test (HIT-6) was also used to measure the effect of headaches on normal daily life and ability to function with scores ranging from 0 to 78. Clinically Useful Anxiety Outcome Scale (CUXOS) and Clinically Useful Depression Outcome Scale (CUDOS) were used to assess the severity of anxiety and depression symptoms in adults, respectively. These are 20- and 18- item self-report measures with total scores ranging from 0 (no anxiety, no depression) to 80 (serious anxiety) or 72 (serious depression). Quality of life was measured using EQ-5D-5L questionnaire. The utilities were obtained using the UK EQ-5D-5L value set. The impact on work productivity (absenteeism, presenteeism) was monitored using the WPAI questionnaire.

The data collected were analysed using descriptive statistics. All costs were converted from Czech crowns (CZK) to euros (EUR, €) using the cumulative exchange rate for 2023 (January-September; CNB (8)), which was equal to 23.84 CZK/EUR. The costs associated with productivity loss were estimated using the average monthly wage including all deductions (€2 436) in Q4/2022 in the Czech Republic.

Results

Baseline characteristics are presented in **Table 1**. In total 147 patients participated in the survey with mean age of 40 years. The vast majority were females (n=140 [95.2%]). 138 patients (93.9%) had their diagnosis confirmed by physician. Mean time since diagnosis equalled 13.5 years. Patients experienced MMD on average 7.4 days in the last month. The average duration of migraine attack was 10.9 hours with medication and 33.3 hours without medication. The majority of patients who did not answer the question about attack duration without medication stated that they always take medication and thus have never experienced it. Moreover, many patients experienced other burdensome migraine symptoms, mostly photophobia or phonophobia (n=134 [91.2%]) and nausea or vomiting (n=121 [82.3%]). Almost half of the patients (n=69 [46.9%]) suffered from comorbidities related to migraine. Details can be seen in **Table 2**.

Table 1. Baseline characteristics

Characteristics	N	Mean (SD)	Median	Min–Max
Age (years)	147	40.0 (10.9)	39.0	16.0–75.0
Height (cm)	123	169.2 (6.9)	168.0	157.0–188.0
Weight (kg)	118	72.7 (16.4)	70.0	45.0–122.0
BMI (kg/m²)	118	25.3 (5.3)	24.3	17.2–41.4
Clinical information				
Time since diagnosis (years)	131	13.5 (9.7)	13.0	0.0–44.0
MMD in last month	147	7.4 (5.5)	6.0	0.0–29.0
Migraine attack duration with medication (hours)	147	10.9 (15.0)	5.0	0.5–72.0
Migraine attack duration without medication (hours)	142	33.0 (25.6)	24.0	0.5–120.0

Table 2. Symptoms and comorbidities

Symptoms and comorbidities	N (%)
Symptoms	
Photophobia or phonophobia	134 (91.2)
Nausea or vomiting	121 (82.3)
Migraine with aura	80 (54.4)
Comorbidities	
No	78 (53.1)
Yes	69 (46.9)
Backache/neckache	49 (33.3)
Anxiety	42 (28.6)
Sleep disorders	34 (23.1)
Depression	24 (16.3)
Hypertension	18 (12.2)
Others (mostly asthma)	17 (11.6)
Obesity	13 (8.8)
Diabetes	4 (2.7)

Figure 1 shows migraine management in the cohort. The vast majority of patients used over the counter or prescription pain relief medicines (n=121 [82.3%]) and triptans (n=105 [71.4%]). Of the 69 (46.9%) patients with prophylactic approach, 35 used prophylactic medication (e.g., anti-depressants, valproate) and 47 took prophylactic measures (e.g., lifestyle changes, sleep hygiene). More than one fifth of patients (n=30 [20.4%]) were treated with targeted/biological therapy in the form of monoclonal antibodies. Part of the patients (n=22 [15.0%]) used antiemetics. 1 patient (0.7%) used corticosteroids.

Results of standardized questionnaires are shown in **Table 3**. Impact on everyday activities assessed with the use of MPFID was 32.8 on average with median 28.6. The mean score for physical impairment was 27.7 with a median 25.0. Mean overall impact on everyday activities was 28.4 with a median 25.0. HIT-6 mean score was 66.0 ranging from 46.0 to 78.0, which is the maximum score indicating huge impact of headache.

Work productivity was assessed with the use of standardized Work Productivity and Activity Impairment (WPAI) questionnaire. In total, 101 working patients correctly filled the questionnaire. Missed (absenteeism) and impaired (presenteeism) work in the past week due to migraine accounted for 11.9% and 39.1% of patients' working time, respectively. Total lost productivity in patients with migraine equalled 42.8% and regular activities were impaired by 46.5%.

Quality of life (QoL) was also assessed resulting in EQ-5D score of 0.712. Patients with migraine had lower QoL compared to general population aged 30–39 years and 40–49 years (0.879 and 0.837, respectively) (9). Results of CUXOS showed mild anxiety in the cohort, with mean score of 23.0. Results of CUDOS indicated minimal to mild depression with mean score of 20.1.

Absenteeism and presenteeism resulted in annual costs of €4 067, €10 084 per patient, respectively, which yields into total annual costs of productivity loss €13 631 per patient. Extrapolated to the estimated total number of patients eligible for treatment with targeted therapy (such as monoclonal antibodies or gepants) in the Czech Republic according to Dolezil et al 2020 (10) (23 000 patients), productivity costs equals €313.5 million. Costs of productivity loss are shown in **Table 4.**

Table 4. Costs of productivity loss

	N	Annual costs per patient (€)	Annual costs per Czech population with migraine (mil. €)
Absenteeism	101	4 067	93.5
Presenteeism	95	10 084	231.9
Total productivity loss	94	13 631	313.5

Discussion

Presented results go in line with the existing global evidence on the burden of disease of migraine for the subgroup of patients with ≥4 MMDs. Findings from the Czech survey have been compared with the results from two international studies (7,11) (**Table 5**). It can be concluded that there were similar trends observed in the decrease of quality of life and that the lost productivity of patients with migraine identified in this study is comparable to other studies from European (11) and worldwide (7) context.

It is important to note that the presented results refer to the population of patients with ≥4 MMDs. However, all patients suffering from migraine to any extent are affected by loss of productivity and reduced quality of life on a certain level. Worldwide, the estimated prevalence of migraine is 14–15% (at least one episode of migraine per year) (12), which means over 1.5 mil. persons are suffering from migraine in the Czech Republic. The burden of migraine on the society in general is therefore significantly higher.

Table 5. Comparison of findings in Czech and international studies

	Czech survey	European survey (11)*	My Migraine Voice survey (7)
Number of patients in the analysis	147	218	11 266
Age	40.0	43.3	39.4
Females	95.2%	79.4%	74.5%
Average no of MMDs	7.4	n/a	n/a
Years from diagnosis	13.5	n/a	11.6
QoL (EQ-5D)	0.712	0.680	n/a
Absenteeism	11.9%	14.4%	13.0%
Presenteeism	39.1%	35.5%	48.0%
Total work productivity impairment	42.8%	38.7%	52.0%**
Total activity impairment	46.5%	44.2%	n/a

*Migraine individuals suffering from ≥4 monthly headache days;
**Data include impairment in absenteeism, presenteeism and daily activities due to migraine.
n/a = not available

Conclusions

The results of this study indicate a significant social and economic impact on patients suffering from migraine and on society as a whole in the Czech Republic. It has been shown that migraine significantly reduces quality of life, limits everyday life functioning and strongly impairs patients´ ability to work.

Figure 1. Migraine management

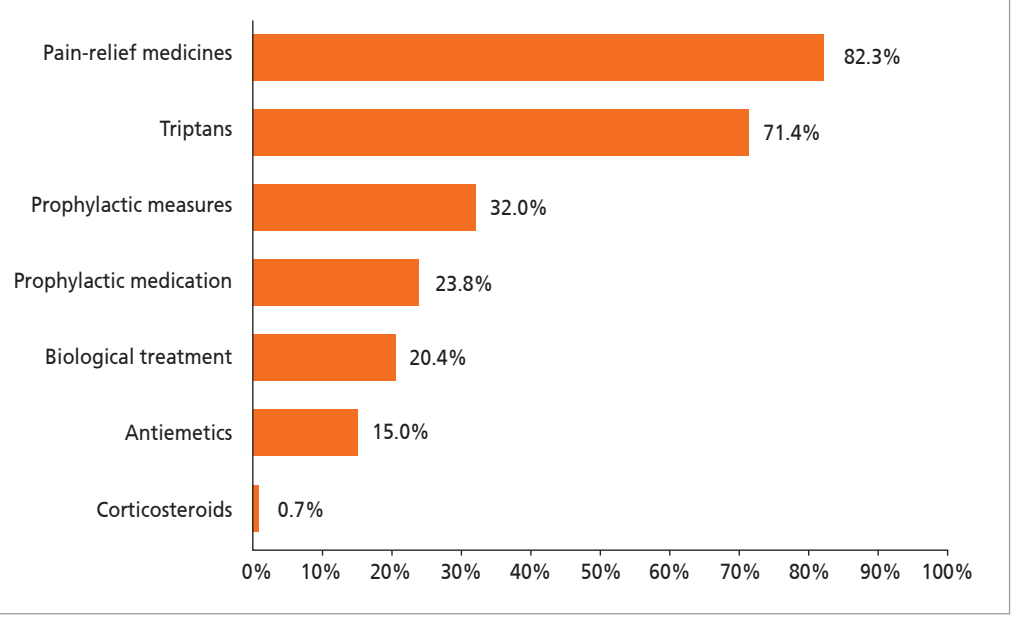

Table 3. Standardized questionnaires results

Standardized questionnaire	N	Mean (SD)	Median	Min–Max
MPFID				
Impact on everyday activities (score range 0–100)	147	32.8 (24.4)	28.6	0.0–96.4
Physical impairment (score range 0–100)	147	27.7 (22.9)	25.0	0.0–90.0
Overall impact on everyday activities (score range 0–100)	147	28.4 (24.1)	25.0	0.0–100.0
HIT-6				
Headache impact (score range 0–78)	147	66.0 (6.1)	66.0	46.0–78.0
WPAI				
Absenteeism				
Score (range 0–100)	101	11.9 (22.3)	0.0	0.0–100.0
Hours missed	101	5.6 (11.6)	0.0	0.0–72.0
Presenteeism				
Score (range 0–100)	95	39.1 (26.7)	40.0	0.0–100.0
Hours missed	95	13.8 (12.5)	11.2	0.0–64.0
Total productivity loss				
Score (range 0–100)	94	42.8 (29.0)	40.0	0.0–100.0
Hours missed	94	18.6 (19.6)	12.4	0.0–123.2
Regular activity impairment (score range 0–100)	147	46.5 (28.4)	40.0	0.0–100.0
EQ-5D				
Quality of life (score range 0–1)	147	0.712 (0.202)	0.750	–0.006–1.000
CUXOS				
Score (score range 0–80)	147	23.0 (14.9)	22.0	0.0–61.0
CUDOS				
Score (score range 0–72)	147	20.1 (15.1)	18.0	0.0–63.0

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ISPOR EUROPE 2023, November, Copenhagen, Denmark

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