Claims database analysis of headache disorders in Spain 2011-2016

Patient profile, healthcare management and direct medical costs

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Background

Headache disorders are extremely common; annually, the percentage of adult population affected with headache is around 50% when the multiple types of headache are considered [1]. Medical surveys across Europe have shown deficiencies in the care of patients with persistent headache and migraine; too few people with migraine refer to physicians, and anti-migraine treatments are used inadequately in an elevated percentage of cases [2]. Such investigations highlight the need to improve health protocols for headache symptoms in an effort to reduce its personal and economic burden. Hence, it is crucial to obtain updated epidemiologic data.

The aim of this study was to revise disease incidence and the profile of the Spanish population affected by headache disorders, contributing with novel data obtained from a Spanish claims database. A second objective was to evaluate the direct medical cost that these patients represent for the healthcare system, providing a basis for the optimisation of resource allocation.

Methods

A retrospective multicentre study was designed including records from patients admitted with headache in primary and secondary care centres in Spain between 2011 and 2016 as registered in a Spanish claims database. ICD9 and ICD10 codes and International Classification of Primary Care codes were used for data claiming, including primary and secondary headaches.

The standardised average expenses of medical procedures determined by the Spanish Ministry of Health were utilised for the calculation of direct medical costs (inpatient and outpatient admissions, diagnosis tests and personnel) that excluded pharmaceutical data.

Results

Patient profile

Records corresponded to 636,722 primary care and 30,077 secondary care patients. 28% of patients in primary care had migraine, yet they were 50% of patients in secondary care (Figure 1).

Females were 60% and 65% of the total in primary and secondary care respectively, except for cluster headaches, a group in which males were the 60%. Mean age was 36.77 ± 21.55 years.

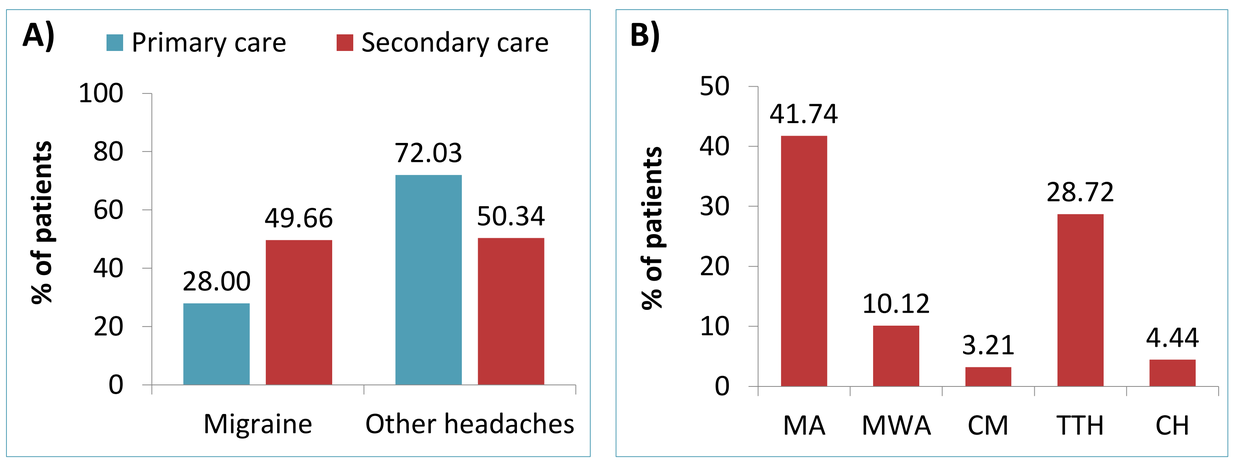

Figure 1. A) % of patients with migraine and other headaches. B) % of patients per headache type in secondary care. MA Migraine with aura, MWA Migraine without aura, CM Chronic migraine, TTH Tension-type headache, CH Cluster Headache.

No direct links were found with patients' employment status.

Slight differences appeared between males and females in the diagnosis of comorbidities (Table 1). The frequency of hypertension and diabetes appeared increased in patients with migraine *vs.* other headaches.

Table 1. Secondary diagnoses found in patients admitted with migraine and with other headache disorders (excluding migraine).

	Males %		Females %	
Secondary diagnoses	Migraine	Other headaches	Migraine	Other headaches
Essential hypertension	19.38	11.09	18.00	12.48
Disorders of lipoid metabolism	14.61	11.57	15.50	14.12
Tobacco use disorder	9.17	11.73	13.71	14.30
Anxiety disorder	8.38	7.24	5.41	3.77
Diabetes mellitus	6.18	2.19	7.00	3.57
Unspecified hypothyroidism	5.86	5.05	1.16	1.13
Dysthymic disorder	5.55	4.26	2.53	1.55

Healthcare management

Overall number of admissions increased 5 folds during the study period (Figure 2). Migraine caused an important portion of admissions.

On average, 3 admissions were registered per patient in primary care, one in secondary care, and most of them were classified as urgent.

Migraine was the cause for 32% of primary care consultations and 50% of secondary care admissions, mostly into neurology. Previous evaluations suggest that repeated neurology consultations are mainly related to ineffective treatment or increased frequency of migraine attacks [3], which indicates the need to improve treatment protocols.

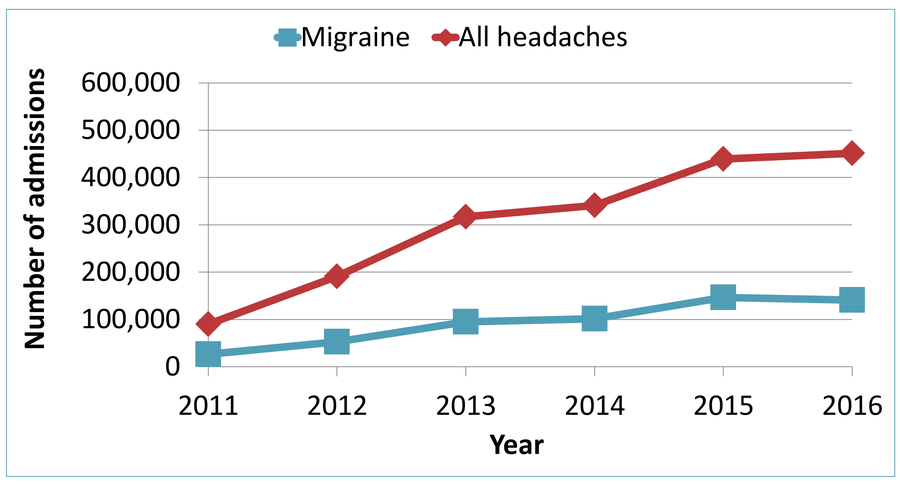

Figure 2. Annual number of primary care admissions linked to all headache disorders and to migraine alone.

Direct medical cost

Migraine was responsible for the largest portion of healthcare costs in 2016, a total amount of € 7,302,718 (Table 2). The estimated annual direct medical cost of primary headache disorders was € 10,445,179 that year, which would increase considerably when adding pharmaceutical costs.

Table 2. Direct medical costs of specialised care of headache disorders.

Disorder	Total cost
Migraine	€ 7,302,718
without aura	€ 880,585
with aura	€ 3,123,802
chronic migraine	€ 219,246
other migraine types	€ 3,079,085
Tension-type headache	€ 1,981,425
Trigeminal autonomic cephalalgias	€ 653,752
Other primary headaches	€ 507,284
Secondary headaches	€ 270,907

Conclusions

Migraine was responsible for half of secondary care admissions linked to headache disorders. The total number of admissions increased 5 folds over the study period, a raise likely to impact the direct medical costs associated to these disorders causing an increase in the total burden for the Spanish National Healthcare System. Improved treatment protocols could alleviate the burden of headache disorders.

REFERENCES

[1] Jensen & Stovner. *Lancet Neurol*. 2008; 7(4):354-61. [2] Katsarava, et al. J Headache Pain. 2018; 19(1):10. [3] Mateos, et al. *Rev Neurol*. 2012; 55(10):577-84.