Clinical characteristics and overuse patterns of medication overuse headache: Retrospective case-series study

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ARTICLE INFO

Keywords:
Medication overuse headache
Migraine
Clinical characteristics
Medication overuse pattern

ABSTRACT

According to Eurolight project’s results, frequency of medication overuse headache in Lithuania is similar to other European countries. However, data on the characteristics of the disorder is lacking.

Objective: The aim was to analyze clinical characteristics and overuse patterns of patients with medication overuse headache.

Patients and methods: Retrospective study was conducted in out-patient department of university hospital. 57.0% of the patients were from Vilnius and 43.0% from other cities and districts of Lithuania. Medical histories of patients consulted by headache specialist on private (86.2%) or public basis from 2008 to 2015 were analyzed. Diagnoses prior to 2013 were revised according to ICHD-III beta criteria. Overuse patterns were calculated only for patients with migraine.

Results: 87 patients (90.8% female) with mean age of 43.78 years were included in the study and 67 of them had primary diagnosis of migraine. Mean duration of overuse was 4.00 years. Mean headache frequency was 24.11 days per month. Triptans more often were overused by younger patients (p = 0.049). 41.8% of migraine patients with MOH overused triptans, 38.8% simple, and 38.8% combination-analgesics. 1 (1.5%) patient overused ergotamines, 7.5% were poly-overusers and no pure opioid overuse was found. Among patients with migraine most common overused medications were sumatriptan (38.8%), caffeine containing combination-analgesics (35.8%) and ibuprofen (20.9%).

Conclusion: Triptans were most commonly overused drugs among patients with migraine. Fairly frequent overuse of combination-analgesics for migraine should raise concern.

1. Introduction

Medication overuse headache (MOH) is a condition caused by excessive use of acute medication used to treat underlying headache. Although prevalence of MOH may be as high as 7.1% \cite{1}, overall, it affects 1–2% of the general population \cite{2}. It is not as common as migraine or tension-type headache, but it is very disabling for the patient and expensive for society. MOH has been a subject of various studies over last several years as it is preventable and largely treatable. MOH has the highest relative cost per patient. The mean per-person annual has been recently estimated \cite{3} to be €3561 in several EU countries, while migraine peaked at €1222, tension-type headache €303 and other headaches €253. Over 90% of these costs are indirect occurring due to absenteeism and reduced productivity. Moreover, proper detoxification may reduce patient’s medication cost up to 24% \cite{4}.

Demographic and clinical characteristics of MOH patients may be influenced by cultural, socioeconomic, healthcare utilization differences between countries or continents. It has been shown that types of drugs overused are partly dependant on how healthcare is utilized in the country \cite{5}. By analyzing the factors that affect patients’ predisposition to overuse acute medication, we could prepare better precautionary implements. According to the adjusted results of the Eurolight project’s survey \cite{6}, prevalence of MOH in general population of Lithuania is about 3.2% \cite{7}. Moreover, with data from Official Statistics Portal of Lithuanian population size aged 18–65 years in 2015, there may be approximately up to 59,000 people with MOH in Lithuania. However, in reality, patients are rarely given MOH diagnosis. Partly because a lot of physicians are not familiar with the condition. Secondly, as there is no reimbursement for MOH treatment, data about the diagnosis may not be submitted to institutions responsible for medical data.
The aim of this study was to analyze clinical and demographical characteristics and types of medication overused of Lithuanian MOH patients.

2. Patients and methods

This retrospective study was conducted in out-patient department of Vilnius University Hospital in 2015–2016. Both private (with private insurance or paid by themselves) and public (with national health insurance) patients were included in the study. Patients were referred by their general practitioner or general neurologist. Medical history of out-patients with headache who attended the clinic from 2008 to 2015 were analyzed retrospectively. Diagnoses of headaches and MOH prior to 2013 were reviewed and confirmed using the ICHD-III beta criteria [8]. Only patients with primary headache and MOH were included in the study. Exclusion criteria were: co-existing complicating or psychiatric illnesses, alcohol or other drug addiction, current treatment with migraine-prophylactic medication, breastfeeding or pregnancy, and history of detoxification treatment of MOH. Data about age, sex, primary headache diagnosis, age of onset of headache, duration of MOH, headache frequency (days per month), types of medication overused were collected. Medication overused included triptans, simple analgesics, combination-analgesics, and ergotamines. Patients overusing combination of acute analgesics without overusing of a single drug-type were classified as poly-overuse. Because groups of tension-type headache (TTH) and migraine with TTH were very small, detailed analysis of overused medications is presented only of patients with migraine. Age and MOH duration were additionally categorized according to COMOESTAS study [5] for comparison with other European countries.

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 22. Categorical data were described as proportions, and continuous data were described as mean and standard deviation. Fisher’s exact test was used for 2 × 2 tables, while Pearson’s chi-square for 2 × 3 tables. One-way ANOVA was used to compare means. Significance was established when p < 0.05.

3. Results

3.1. Study population

A total of 87 patients (90.8% females) were included in the study (fig. 1). 57.0% of the patients were from Vilnius and 43.0% from other cities and districts of Lithuania. 93.0% of the patients were from urban and 7.0% from rural areas. 86.2% of the study population were private patients. The mean age was 43.78 ± 14.23 years, median 42 and ranged from 19 to 82 years. 64.4% of study population were 30–55 years old. The main primary headache diagnosis was migraine (77.0%) and diagnosis varied by age (Table 1). Mean age of onset of primary headache was 21.54 ± 12.75 years. Mean duration of overuse was 4.00 ± 5.38 years and peaked at 27 years. There were 18 (23.7%) patients with duration of overuse less than 1 year, 43 (56.6%) patients overused medications from 1 to 5 years and 15 (19.7%) – more than 5 years. Mean headache frequency was 24.11 ± 6.07 days per month. 35.6% of the patients described their headache as persistent. Patients with MOH duration less than 1 year had headache frequency 23.65 ± 5.72 days per month; with MOH duration of 1–5 years — 24.45 ± 6.29 days per month; and with MOH duration more than 5 years — 27.27 ± 4.71 days per month (p = 0.187). MOH – medication overuse headache, N – number, TTH – tension-type headache.

3.2. Medication overuse patterns

The most often overused medication group by migraine patients was triptans (41.8%). 26 (38.8%) of migraine patients overused simple analgesics, 26 (38.8%) combination-analgesics, 1 (1.5%) ergotamines, 5 (7.5%) were attributed to poly-overuse, and no pure opioid overuse was found. Sumatriptan was the most often overused triptan. Among simple analgesics ibuprofen was mostly overused. Caffeine was the most common component of combination-analgesics (Table 2). Triptans were more likely overused by younger patients (Table 3). No significant differences were found between medication overuse patterns and sex or patient consultation type (public or private) (p > 0.05).

In group of patients with migraine and TTH 5 (55.6%) overused combination analgesics, 4 (44.4%) simple analgesics, 1 (11.1%) was attributed to poly-overuse and none of these patients overused triptans or ergotamines. TTH patients most often overused simple analgesics (72.7%), 5 (45.5%) overused combination analgesics, 1 (9.1%) triptans and 2 (18.2%) were attributed to poly-overuse.

4. Discussion

This is one of the first studies showing MOH status in Eastern Europe. This study should encourage researchers analyze MOH in other countries as well.

Most of our MOH patients were able-bodied population predominantly female. Migraine was the most common cause of primary headache. In comparison with the study of COMOESTAS project [5], our patients do not significantly differ from German, Italian, Spanish and Danes populations by age, gender, headache frequency or duration of overuse. However, primary headache seems to manifest later in Lithuanian than Italian and German patients (21.54 ± 12.75, 14.1 ± 6.0 and 18.1 ± 9.2 years respectively). Primary headache diagnosis distribution of our patients mostly resembles German and Italian data, while Spanish and Danes have much bigger proportion of TTH diagnosis. In comparison to a study in China [9], MOH patients were of similar age and MOH duration to our study, however, with greater proportion of patients with TTH diagnosis alone.

Triptans were the most commonly overused drugs among our study patients with migraine (41.8%). Sumatriptan was the most often overused triptan. Younger patients overused triptans more often. However, these results may be overestimated, because most of our study participants were private, and possibly with better financial status. In Lithuania sumatriptan, zolmitriptan, rizatriptan and naratriptan are subsidized 50% under diagnoses of status migrainosus, and complicated migraine. This compensation scheme was adopted before the release of ICHD-III beta and in previous version chronic migraine was attributed to complicated migraine, therefore a lot of patients are
able to purchase partially compensated triptans. Because subsidized sumatriptan cost only slightly more than common simple or combination analgesics, this also may have influence on high triptan overuse. Danes and Italians, similarly, often overused triptans (55.3% and 47.4%), possible because they are subsidized, while German and Spanish patients overused more rarely (37% and 16.3%). In Germany, triptans are not subsidized, while in Spain triptans are subsidized as showed similar tendency of simple analgesics (81.8%) and combination analgesics (36.4%) overuse as our patients[5]. Overuse of simple analgesics is not common in Asian countries such as China, India and Japan[9–11].

The largest difference in overuse pattern between our and Western Europe patients is overuse of combination-analgesics. It varies from 4.7% of Spanish to 21.6% of Italian populations[5], and is 38.8% of our MOH patients. Both simple and opioid-free combination-analgesics are not subsidized over-the-counter (OTC) drugs in Lithuania, Denmark and Germany[5]. Accessibility of this medication is similar, so other factors could influence large consumption of combination-analgesics, for example advertisement through the mass media, recommendations of healthcare personnel such as pharmacist, medication price. Moreover, some of study patients (6%) still overused unregistered in Lithuania medications, which were popular more than 25 years ago, and now are available in the neighbour countries. Combination-analgesics are also commonly overused by Japanese, Chinese and Indian patients[9–11].

Although ergotamines are not available in the market of Lithuania since 2000, 1 case of overuse was found. Only a few cases (8 in total) among migraine patients were identified in other European countries as ergotamines are almost replaced with triptans[5]. Similar tendency of ergotamine overuse reduction was reported in United States and Canada over a decade ago[12,13]. However, ergotamines are still widely used in India, China and Argentina as there they are cheap, OTC drugs. Poly-overuse was found in 7.5% and this number is in line with other European countries[5]. No overuse of pure opioids was found as they are difficult to acquire. Similarly, pure opioid overuse is not common in Europe[5], however, in United States it is more prevalent[12] and may remain so, as opioids are still widely used to treat headaches in emergency departments[14,15].

Due to small number of patients in TTH and migraine with TTH groups it is impossible to make reasonable comparisons with other countries. Danish group, which had the most TTH patients (N = 33), showed similar tendency of simple analgesics (81.8%) and combination analgesics (36.4%) overuse as our patients[5].

Our medical data were collected mostly from private patients, therefore these results should carefully be extrapolated to the general population. Due to retrospective design of the study some data errors were inevitable. We did not evaluate other important factors such as impact of headache, comorbidities, headache-related disability.
In conclusion, clinical characteristics of medication overuse headache in our study were similar to Western European countries. Overuse of simple analgesics and triptans stays in line as well and varies probably due to subsidization and financial differences. However, prevalent overuse of combination-analgesics, especially those containing caffeine and codeine, raises concern.

Acknowledgements

No acknowledgements

References