EPIDEMIOLOGY AND DETERMINANTS OF CHRONIC MIGRAINE: A REAL-WORLD STUDY IN PRIMARY CARE IN ITALY

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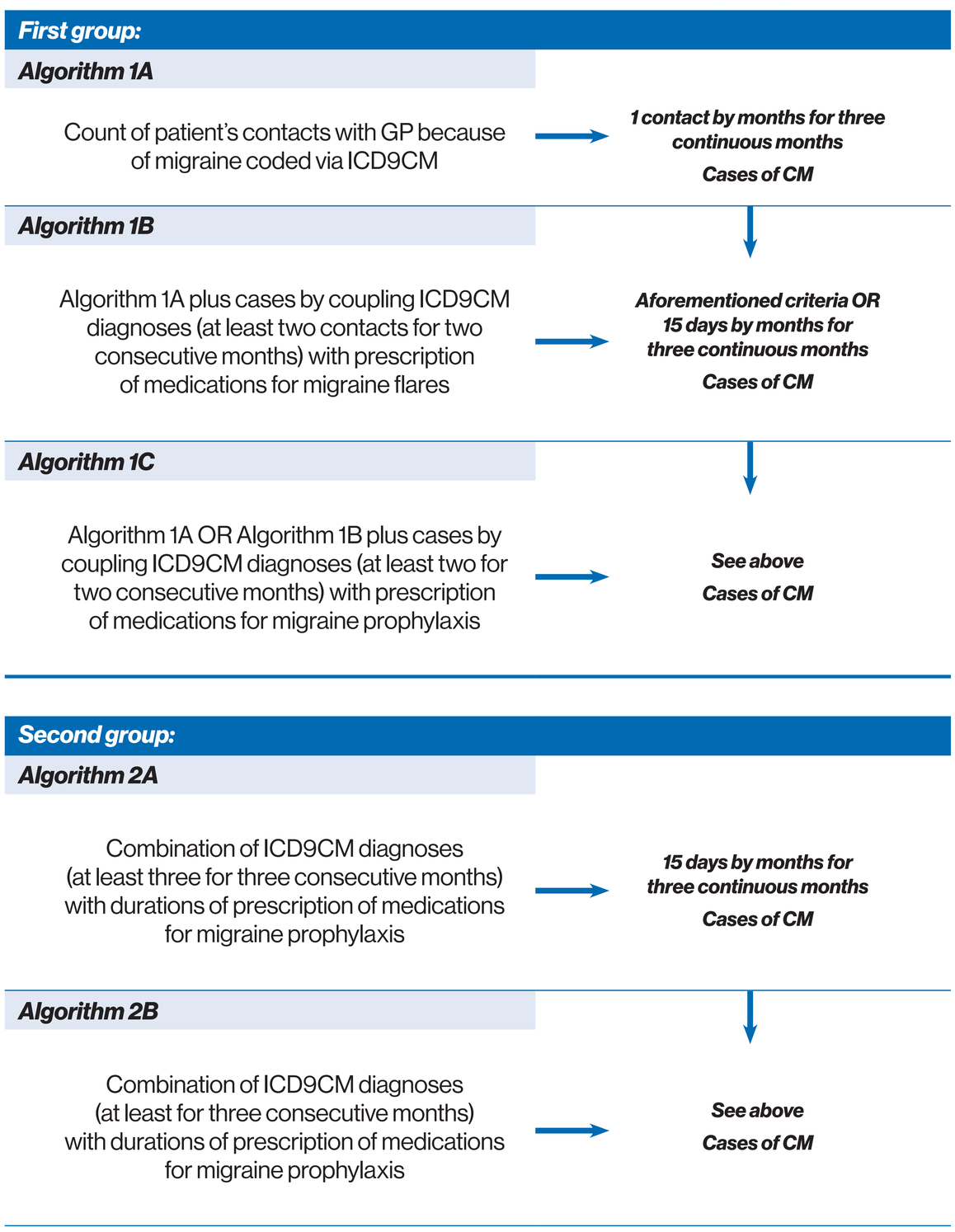
OBJECTIVES

Chronic Migraine (CM) is a relevant public health concern. However, there are several clinical and sociodemographic features which make difficult the diagnosis of CM. Given the "gatekeeper" role of GPs in the public health system in Italy, the epidemiology of CM in primary care is pivotal. This study therefore aims to assess the epidemiology of CM in primary care in Italy by testing five operational algorithms defining CM. These algorithms adopted different combinations (i.e. increasing or decreasing completeness and correctness) between migraine-related contacts coded via ICD9CM and medications use with related durations among migraine sufferers.

Figure 1: Definition process of **chronic migraine (CM)** through Algorithm 1A – 3



METHODS

Using the Health Search Database we performed population-based cohort study. A set of algorithms defining CM were developed to estimate the prevalence and incidence rate of CM in a cohort of patients active in Health Search Database (HSD) on January 1, 2016. In addition, we conducted a nested case-control analysis in an attempt to quantify the level of association between candidate determinants of CM according to each algorithm.

RESULTS

The prevalence rate increased from the first to the fifth algorithm ranging 0.03% - 0.28%. There was no 95% Confidence Intervals (CI) which overlapped the others, and every CI reliably maintained 2% precision. Incidence rates showed a growing trend (i.e., 0.008-0.056 per 100000 person-years) as well. Overall, all algorithms were able to capture sex (females show a greater risk than males), and NSAIDs overuse as statistically significantly determinants of incident cases of CM. The presence of depression was associated with a statistically significant increase of incidence rate of CM only for two algorithms.

Table 1: Prevalence and incidence rate of Chronic migraine in 2016

	Prevalence rate		Incidence rate	
	CM (primary definition)		CM (primary definition)	
	N	% (CI 95%)	N	*100000 (CI 95%)
Algorithm 2A	368	0.03 (0.030 - 0.030)	30	0.008 (0.006 - 0.011)
Algorithm 2B	812	0.08 (0.079 - 0.081)	71	0.019 (0.015 - 0.024)
Algorithm 1A	1550	0.15 (0.149 - 0.151)	85	0.022 (0.018 - 0.028)
Algorithm 1B	1791	0.17 (0.169 - 0.171)	114	0.030 (0.025 - 0.036)
Algorithm 1C	2991	0.28 (0.279 - 0.281)	212	0.056 (0.049 - 0.064)

CI, confidence interval; CM, Chronic migraine
*100000 person-years

Table 2: Determinants of chronic migraine across Algorithms (Odds Ratio CI 95%)

Variables	Cases *n (%)*	Controls *n (%)*	OR (95% CI)	P value
Algorithm 1C				
Sex				
Females	830 (78.38)	10081 (56.51)	**2.77 (2.37-3.23)**	<0.001
Obesity				
Yes	25 (2.36)	630 (3.53)	0.68 (0.43-1.08)	0.10
Missing	931 (87.91)	15514 (86.96)	1.07 (0.82-1.41)	0.61
NSAIDs overuse				
Yes	75 (7.08)	247 (1.38)	**5.66 (4.25-7.53)**	**<0.001**
Smoking				
Yes	50 (4.72)	1090 (6.11)	0.75 (0.53-1.07)	0.11
Former	15 (1.42)	364 (2.04)	0.69 (0.39-1.22)	0.20
Missing	888 (83.85)	14962 (83.87)	**0.77 (0.6-0.99)**	0.04
Alcohol abuse overuse				
Yes	1 (0.09)	70 (0.39)	0.41 (0.06-2.97)	0.38
Depression and overuse NSAIDs				
Yes	25 (2.36)	316 (1.77)	1.38 (0.9-2.11)	0.14

CI, confidence interval; NSAID, Nonsteroidal anti-inflammatory drug; OR, Odds ratio

Table 3: Point estimates pooling sex, NSAIDs overuse and depression across algorithms

Algorithm 1A	21.2 (9.95-45.19)
Algorithm 1B	25.2 (12.67-50.15)
Algorithm 1C	21.55 (12.69-36.61)
Algorithm 2A	165.61 (38.57-711.00)
Algorithm 2B	53.26 (23.23-122.08)

CONCLUSIONS:

Our findings show that prevalence and incidence rate of CM are underestimated in HSD when compared with current literature. On the other hand, we found acceptable correctness of CM definition given the consistency across the defining algorithms in capturing significant associations with well-known determinants.