

RELAZIONE DI METÀ E FINE PERIODO

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TIPOLOGIA DI BORSA RICEVUTA: Borsa di studio SIF per soggiorni all'estero

TIPOLOGIA DI RELAZIONE (es.: metà periodo o finale): metà periodo

TITOLO DELLA RELAZIONE Migraine occurrence during Diabetes treatments, preliminary results from Norwegian prescription database (NorPD) 2004-2014

RELAZIONE:

Introduction

Migraine is a chronic neurovascular disease that affects more than 10% of general population and represents the seventh most common cause of disability worldwide (1). Generally, a migraine episode is characterized by several symptoms such as headache, photophobia and phonophobia (2). In the last decades, different risk factors have been associated with this disease: Blood pressure, dyslipidemia, obesity, smoking, family history of cardiovascular disease and diabetes (3). The relationship between diabetes and migraine has still debated, as insulin resistance have been observed in migraine patients (4), while several cross-sectional studies have reported conflicting results on diabetes and migraine occurrence (5-8).

The aim of this nationwide registry-based cohort study is to examine whether diabetes is associated with an increased risk of migraine.

Methods

Data were extracted from Norwegian National Registry with Norwegian Prescription database (NorPD). Individuals (≤ 80 years old) resident in Norway from 01/01/2004 to 31/12/2014 were included in the main analysis. The Norwegian personal identification number was used to link prescription data to demographic characteristics (time of emigration, immigration or death) and educational level from the Norwegian National Education Database (NNED). Drug prescriptions were classified according the Anatomical therapeutic Chemical classification (ATC code) and used as proxy of disease. In particular, Diabetes type 1 (DM1) was defined as presence of at least 180 Defined Daily Dose (DDD) of only insulin (A10A), Diabetes type 2 (DM2) at least 180DDD of oral antidiabetic drugs (A10B) with or without concomitant insulin administration, and migraine patients as all individual treated with at least one prescription of ergotamines (N02CA) or triptans (N02CC).

The NorPD database includes the main indications for drugs covered by the National Insurance Scheme from 2008, and these are coded according with the International Statistical Classification of Disease and Related Health Problems, 10th version (ICD-10) and International Classification of Primary Care (ICPC). We used these classifications to validate our previous prescription classifications of DM1 and DM2.

Preliminary results

The age distribution of DM1 and DM2 cases included in the study was similar when the different definitions were compared (only prescription and prescription with diagnosis classification - Figure 1 and 2).

Table 1 shows preliminary descriptive results, without any statistical analysis, for the diabetes cases. The DM2 represented the majority of included patients with 93,600 cases, whereas DM1 17,883. For both DM1 and DM2 more than half of patients were male. The median age among DM1 patient was 29 years old patients, while it was roughly 60 years in DM2 patients.

Table 2 shows demographic characteristics of migraine treated patients. Generally, female (at least 71%) represented the major of included cases. Triptans were the most used drugs with 178,262 young patients (34 years old) of total cases.

Further analysis

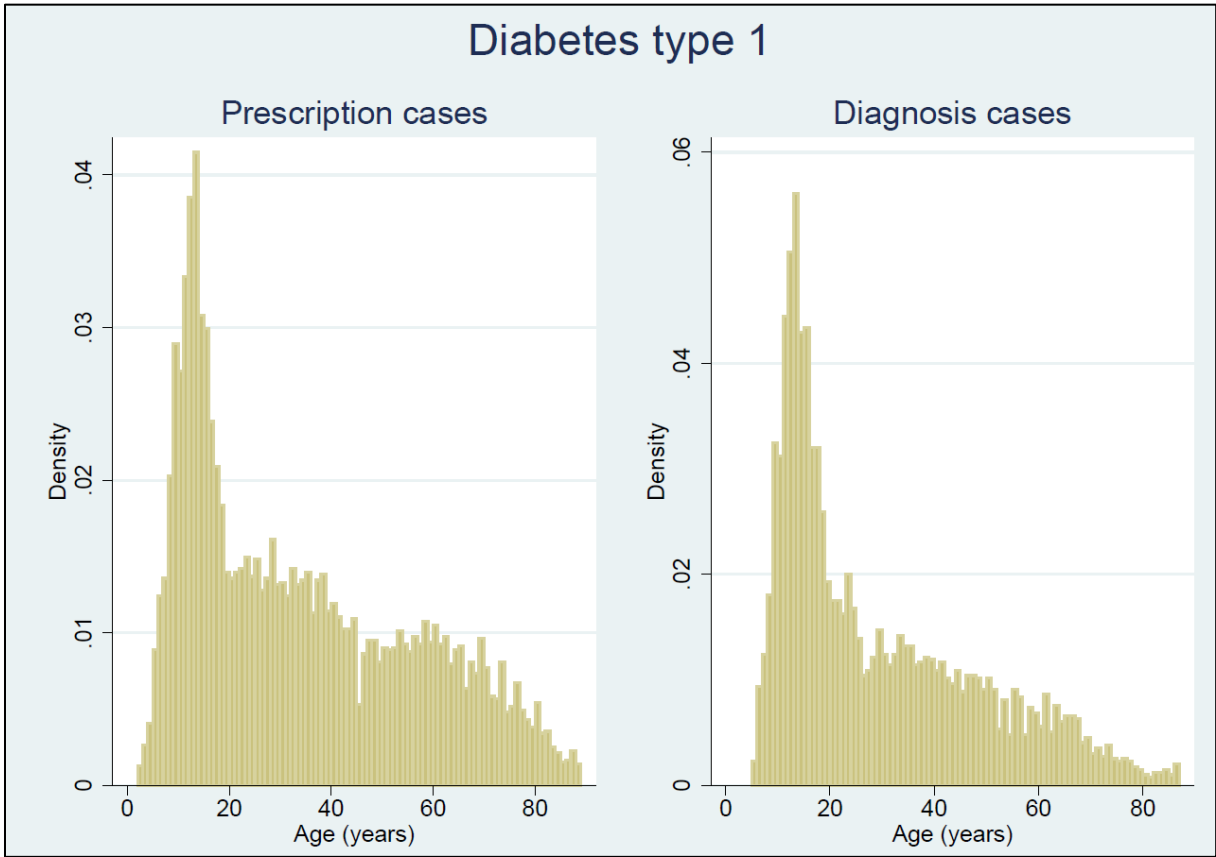
In the next months, I will, in collaboration with the rest of the group, assess whether diabetes is associated with increased risk of migraine. Since DM1 and DM2 are two different diseases characterized by peculiar physiopathology, analyses will be performed separately for each type of diabetes.

Secondly, we are conducting sensitivity analyses with more narrow inclusion criteria for diabetes classification. Since classification of diabetes through prescription database could generate misclassification of included cases, these analyses represent a method to validate our previous classification.

Finally, in order to evaluate relationship between migraine and diabetes we are going to estimate diabetes occurrence in migraine treated patients.

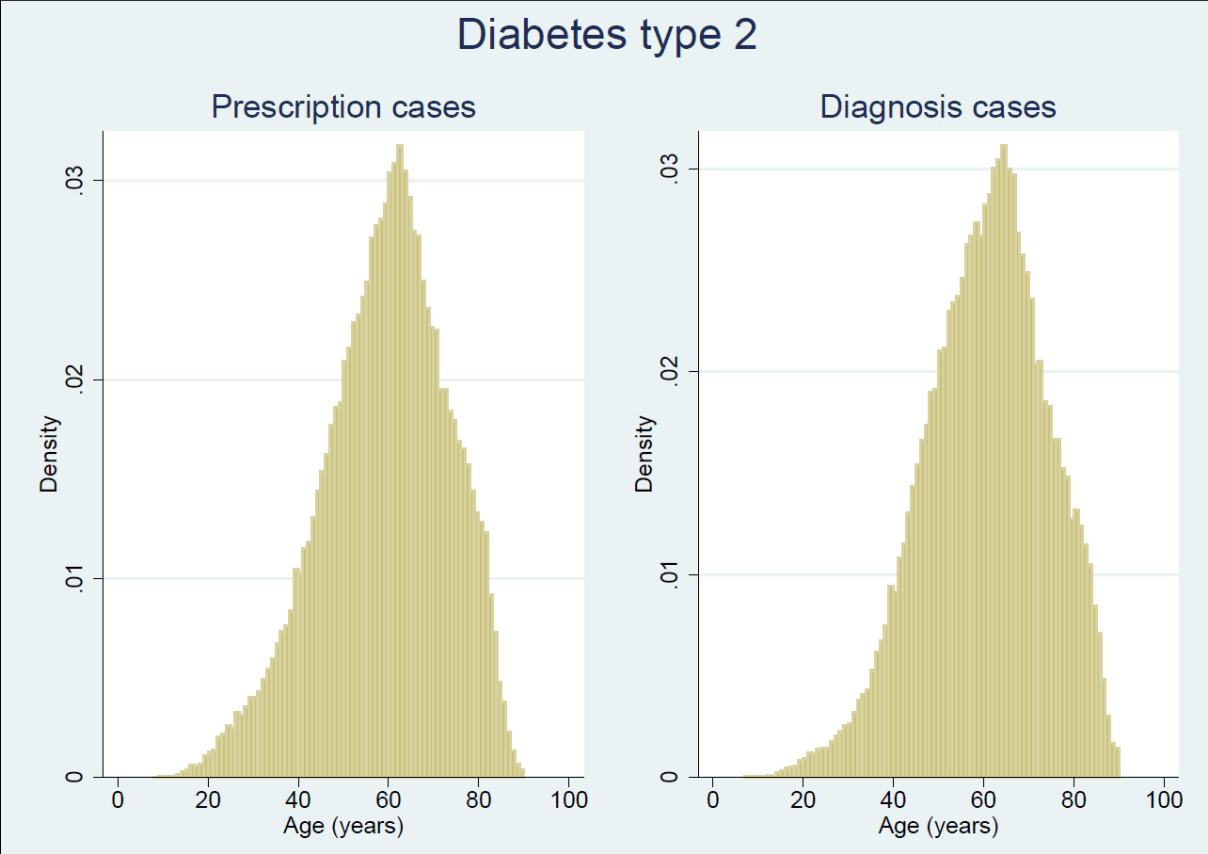
We will conduct the analyses using Cox regression models, reporting hazard ratios with 95% confidential intervals. Statistical analysis will be adjusted for: gender, age (5 years interval levels) and educational level (categorical variable: primary education - 10 years or less, secondary education - 11-13 years, undergraduate education - 14-17 years and graduate education 18 years or more).

Figure 1 The Diabetes mellitus type 1 (DM1) prescription and diagnosis cases distribution.



On the left age distribution for diabetes type 1 cases retrieved considering prescription data: 7,883
On the right age distribution for diabetes type 1 cases retrieved considering diagnosis code: 3,937

Figure 2 The Diabetes mellitus type 2 (DM2) prescription and diagnosis cases distribution.



On the left age distribution for diabetes type 2 cases retrieved considering prescription data: 93,600
On the right age distribution for diabetes type 2 cases retrieved considering diagnosis code: 68,980

Table 1 The Diabetes Mellitus demographic characteristics.

	Diabetes type 1	Diabetes type 2
Number	7,883	93,600
Gender		
Male, %	59.7	57.5
Female, %	40.3	42.5
Age, median	29	60
Educational		
Elementary, %	21.21	35.94
Secondary, %	26.46	46.3
Undergraduate, %	9.49	12.83
Graduate, %	3.48	3.54
Missing,%	39.36	1.38

Diabetes type 1: defined as at least 180DDD of only A10A prescription

Diabetes type 2: defined as at least 180DDD of A10B with or without concomitant A10A prescription

Table 2 The Migraine demographic characteristics.

	Any Migraine ^(a)	Ergotamines ^(b)	Triptans ^(c)	Ergotamines and Triptans ^(f)
Number	182,628	2,147	178,262	2,219
Gender				
Male, %	26.5	28.5	26.5	21.7
Female, %	73.5	71.5	73.5	78.3
Age, median	34	54	34	41
Educational				
Elementary, %	25.4	28.4	25.3	29.5
Secondary, %	33.0	43.3	32.8	39.5
Undergraduate, %	16.6	17.8	16.6	17.2
Graduate, %	3.4	6.2	3.4	4.3
Missing,%	21.6	4.3	21.9	9.4

(a) Any migraine: defined as Ergotamines (N02CA) or Triptans (N02CC) prescription.

(b) Ergotamines: defined as only N02CA prescription.

(c) Triptans: defined as only N02CC prescription.

(f) Ergotamines and Triptans: defined as N02CA and N02CC prescription in the same time.

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