Effects of mental comorbidities on initiating disease-modifying therapies: a population-based study

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Introduction

Mental comorbidities (MC) are common among Multiple Sclerosis (MS) patients and their effects may have impact on care-seeking particularly on Disease Modifying Therapies (DMTs) decision.

Objective: assess the impact of mental comorbidities on DMT initiation in MS patients in a 6-year cohort study based upon data from the French national health insurance.

Methods

Source of data

Extraction of the French national health insurance system (SNDS)
→ Patients with MS identified between 2010 and 2015

Study design

Cohort of MS patients identified with a specific MS algorithm based upon several criteria (Long Duration Disease: LDD, Hospital admissions, DMTs)

Mental comorbidity status identified as present annually if at least one of the following criteria occurred:

1/ LDD status for psychiatric affection;

2/ At least two reimbursements for treatment associated with mental comorbidities;

3/ At least one hospital admission in relation with mental comorbidity (ICD-10 diagnosis codes among F2x / F3x / F4x / F50 / F6x).

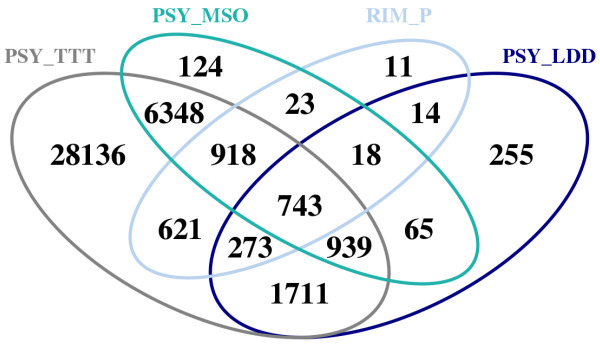
A case of MC was identified if at least 3 annual occurrences over the period were observed.

Outcome

- **Initiation of a DMT** defined as ≥1 filled prescription of beta-interferon, glatiramer acetate, fingolimod , teriflunomide, dimethyl fumarate, natalizumab

Results

Figure 1. Venn diagram: MS patients identified with mental comorbidities following various data sources in the SNDS during 2010-2015 (n=40,198)



PSY_TTT: two reimbursements for treatment associated with mental comorbidities
PSY_MSO: care consumption for mental comorbidity in general hospital
RIM_P: care consumption for mental comorbidity in psychiatric hospital
PSY_LDD: long duration disease for psychiatric affection

- Presence of MC was mainly found through reimbursements of treatment related to MC (98.7%), followed by care consumption hospital (24.4%) and finally with LDD status for psychiatric affection (10.0%), categories being not mutually exclusive.

Table 1. Characteristics of MS patients with and without mental comorbidities between 2010 and 2015 (N=97,012)

	Without MC n=56,814 (52.7%)	At least 3 sequences of MC over the period n=40,198 (37.3%)
Sex ratio (F:M)	2.1	3.2
Age in 2010, median [Q1-Q3]	38 [29-48]	42 [34-51]
Age at MC identification, median [Q1-Q3]	-	49 [41-58]
First claim for MS among various data sources of SNDS, n(%)		
MS LDD	42783 (75.3)	32512 (88.3)
Specific treatment of MS	1704 (2.9)	720 (1.8)
In-hospital care consumption for MS	12327 (21.7)	6966 (17.3)
First claim for MC among various data sources of SNDS, n(%)		
Psychiatric LDD	-	1773 (4.4)
Specific treatment for depression	-	34666 (86.2)
Specific treatment for BP	-	2323 (5.8)
Specific treatment for schizophrenia	-	615 (1.5)
In-hospital care consumption for MC	-	821 (2.0)
Comorbidity index (Charlson's score), n(%)		
0	43102 (85.4)	30111 (77.7)
[1-2]	6615 (12.5)	7515 (18.7)
[3-4]	632 (1.3)	944 (19.4)
≥5	130 (0.3)	167 (0.4)
Missing data	6335 (11.1)	1461 (3.6)
Social deprivation index, n(%)		
1	11012 (19.4)	6725 (17.6)
2	10571 (18.6)	6826 (17.9)
3	10750 (18.9)	7360 (19.3)
4	10402 (18.3)	7407 (19.4)
5	10212 (17.9)	7254 (18.9)
Missing data	3867 (6.8)	2790 (6.9)
Density of GP, median [Q1-Q3]	70.4 [52.7-87.9]	72.0 [54.3-89.3]
Missing data, n(%)	3382 (5.9)	2600 (6.5)

Abbreviations: MS=Multiple Sclerosis; MC=Mental Comorbidities; DMT=Disease Modifying Therapy; LDD=Long Duration Disease; BP=Bipolar Disorders; GP=General Practioner
Notes: Social deprivation index is calculated at level of area of residence including four socio-economic variables (the median household income, the percentage of high school graduates in the population aged 15 years and older, the percentage of blue-collar workers in the active population, and the unemployment rate). Interpretation: 1=most favored to 5=most deprived.
Density of GP index is calculated at level of area of residence reflecting health care taking into account supply and demand. Interpretation: Half of MS patients without comorbidities lives in area of residence where the number of general practioners is below of 70.4 full-time equivalent of GP for 100.000 inhabitants.

Table 2. Characteristics of DMT initiation over the period according to mental comorbidity status (N=97,012)

	Mental comorbidity status Absent n= 56,814	Present n=40,198
DMT over the period, n(%)	28521 (50.2)	18891 (46.9)
Time between 2010 and DMT initiation, n(%)		
≤1 year	47937 (84.4)	31316 (77.9)
[2-3] years	5013 (8.8)	4196 (10.4)
[4-6] years	3864 (6.8)	4685 (11.7)
First DMT initiation over the period, n(%)		
Beta-interferon	14282 (50.0)	7991 (42.3)
Glatiramer acetate	5763 (20.2)	5082 (26.9)
Fingolimod	712 (2.5)	500 (2.6)
Teriflunomide	1488 (5.2)	622 (3.3)
Dimethyl fumarate	1551 (5.4)	558 (2.9)
Natalizumab	4725 (16.6)	4138 (21.9)

Abbreviation: DMT=Disease Modifying Therapy

Discussion

- Over the period, the prevalence of MC was 37.3% among MS patients.
- In this cohort study, MS patients with or without comorbidity differed in age (42 vs 38) and sex (3.2 vs 2.1).
- The rate of initiation of DMTs in MS patients was lower in presence of mental comorbidities. Similarly, the rate of DMT initiation in the first year was lower for MS patients with mental comorbidities.
- Data were nearly exhaustive at national level and unbiased regarding patients recruitment but data was not available before 2010.

References

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