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Research report

Diagnosis of bipolar disorder in primary and secondary care: What have we learned over a 10-year period?

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ABSTRACT

Background: Studies suggest that misdiagnosis of bipolar disorders (BD) is frequent in primary care. This study aimed to evaluate agreement between referral for BD by general practitioners (GP) and BD diagnosis by secondary care psychiatrists, and to evaluate the impact of age, gender, and BD type on agreement.

Methods: The study was conducted at Hôpital du Sacré-Coeur de Montréal's "Module Evaluation/Liaison" (MEL), which establishes/clarifies psychiatric diagnoses requested mainly from GPs and directs patients to appropriate treatment and care. Socio-demographic variables, reason for referral, and psychiatric diagnosis were compiled for patients assessed from 1998 to 2010. GP-psychiatrist agreement was established for BD type, gender, and age group (18–25, 26–35, 36–45, >45) using Cohen's Kappa coefficient (K).

Results: From 1998 to 2010, MEL psychiatrists received 18,111 requests and carried out 10,492 (58%) assessments. There were 583 referrals for BD suspicion, while 640 assessments (6.1%) received a BD diagnosis (40.3% type I, 40.5% type II). The overall K was 0.35 (95% CI [0.31, 0.38]), and was significantly higher for type I than type II (I=0.35, 95% CI [0.30, 0.39]; II=0.25, 95% CI [0.21, 0.30]), though age group and gender had no impact.

Limitations: Reasons for referral were converted into keywords and categories to facilitate agreement analyses. Only the main psychiatric diagnosis was available.

Conclusions: Our study suggests diagnosing BD remains strenuous, regardless of age and gender, though BD type I seems better understood by primary care GPs. The true measure of BD diagnosis remains a critical issue in clinical practice.

1. Introduction

Bipolar disorder (BD) is an affective disorder in which patients experience episodes of elevated or irritable mood, known as mania or hypomania, which fluctuate with episodes of depression (American Psychiatric Association, 2013). When not properly diagnosed and treated, BD can be associated with a higher risk of hospitalization, psychosocial impairment, comorbidities, suicide attempts, and treatment refractoriness or mixed/rapid states (Ghaemi et al., 1999, 2000; Goldberg and Ernst, 2002; Hirschfeld et al., 2003; Schneck et al., 2008). Consequently, its early and accurate diagnosis is essential to a proper and timely treatment intervention, aiming to provide patients with maximal functionality.

BD generally begins between age 15 and 25 (Ghaemi, et al., 2000; Merikangas et al., 2007; Perlis et al., 2006; Schaffer et al., 2010; Suppes et al., 2001; Weissman et al., 1996), though it often takes up to 12 years for the accurate diagnosis to be established, particularly when it comes to BD type II (Egeland et al., 1987; Ghaemi, et al., 2000; Lish et al., 1994). According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the 12-month prevalence estimate of BD type I in the United States was 0.6%, and varied from 0.0% to 0.6% across 11 countries (American Psychiatric Association, 2013). As for BD type II, 12-month prevalence reached 0.8% in the United States and 0.3% internationally. Population-based surveys having used structured diagnostic interviews have estimated the lifetime prevalence of BD to be 0.8% for type I and 1.1% for type II (Angst 2004; Bauer and Pfennig, 2005; Grant et al., 2005; Pini et al.,

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2005; Tohen and Angst, 2002; Waraich et al., 2004; Weissman et al., 1996; Wittchen et al., 2003), though it is suggested that results from prospective longitudinal studies suggest that population-based surveys may underestimate the true pervasiveness of BD (Angst et al., 2003). When aiming to quantify the rate of positive screens for BD I and II in the general US population using the Mood Disorder Questionnaire (MDQ), Hirschfeld et al. (2003) found that only 19.8% of the individuals with positive screens for BD I or II reported having previously received a diagnosis of BD, whereas 31.2% reported receiving a diagnosis of unipolar depression, and 49% reported receiving no diagnosis of either unipolar or bipolar depression. Overall, their results suggest that approximately 4% of US adults may suffer from BD, but that BD remains undiagnosed in most cases.

Conversely, some evidence points to increasing rates of BD diagnoses in recent years (Mitchell, 2012). Moreno et al. (2007) reported that visits to physicians in office-based practice by adults ($\geq$20 years) with a BD diagnosis doubled over the decade following the mid-1990s (BD diagnosis was based on International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)). However, a cross-national epidemiological study in adults revealed highly variable rates of BD in different countries: Iceland 0.2%, Taiwan 0.4%, Korea 0.5%, Puerto Rico 0.9%, Canada 1.1%, New Zealand 2.4%, Israel 2.6%, USA 3.0%, Italy 3.4%, Switzerland 5.1% and Hungary 5.5% (Noaghiul and Hibbeln, 2003). Studies having used only DSM-IV criteria have revealed prevalence rates spanning from 0% (Nigeria) to 0.9–1.0% (Brazil, United States, New Zealand), and to 1.4% (Germany) (Johnson and Johnson, 2014). These results suggest that the epidemiology and phenomenology of adult BD in the USA is not so different from that of other countries, some of which seem to show even higher rates.

Given the abovementioned criticisms regarding BD diagnosis, there is a growing need to understand the referral and diagnostic patterns leading to BD diagnoses or misdiagnoses in the general population, and to identify factors that may contribute to the challenge of diagnosing BD accurately and early in the course of the disorder.

The primary goal of this study was to assess the agreement between initial suspicion of BD from general practitioners (GP) with the diagnosis made by the shared-care psychiatrists over a 10-year period. A shared-care assessment program serves as a single point-of-entry for patients referred for suspicion of a psychiatric illness, whether from primary care, emergency services, or secondary care. This program enables centralized assessment of psychiatric referrals and facilitates subsequent access to the suitable line of care and treatment. More specifically, patients can be oriented toward specialized psychiatric programs or sent back to primary care services with specific recommendations with regards to diagnosis and treatment. A secondary goal was to evaluate the impact of age, gender, and BD type on GP-psychiatrist agreement. Given that increases in BD diagnoses have been reported in the literature in recent years, we hypothesized that over time GPs would increasingly refer patients for a BD suspicion and psychiatrists would increasingly diagnose BD. Moreover, given that it often takes several years before BD is diagnosed and that BD type II is more difficult to accurately diagnose, we hypothesized that GP-psychiatrist agreement would be higher among older patients and those diagnosed with BD type I.

Table 1
Demographic characteristics of the MEL's catchment area (Benoit, 2003; Montréal en statistiques, 2014a,b).

Total (*N*=372,268)	
Female (%)	52
Age (mean)	39
Married/cohabiting (%)	53
Ethnicity (%)	
-Caucasian/Arab	60
-Hispanic/Latino	6
-Black/African	15
-Asian	19
Education (%)	
-Less than CEGEP[a]	56
-Completed CEGEP	16
-Greater than CEGEP	28

[a] CEGEP: *Collège d'enseignement général et professionnel* or General and Vocational College is the name of post-secondary institutions in Québec, which provide either a general degree required for university admission, or provide a vocational degree in a specific trade or discipline.

2. Methods

2.1. Shared-care assessment module

The study was conducted at the Hôpital du Sacré-Coeur de Montréal (HSCM), affiliated to the Department of Psychiatry of Université de Montréal, which provides a shared-care assessment program called *Module Évaluation/Liaison* (MEL) to a heterogeneous catchment area of up to 375,000 residents (see Table 1 for demographic characteristic of the catchment area). The study was approved by the Research Ethics Committee of the HSCM and data confidentiality was ensured by removing all nominal information.

2.2. Origin and characteristics of patients referred to the MEL during the study period (1998–2010)

From 1998 to 2010, 18,111 assessment requests were received by the MEL and 10,492 (58%) assessments were carried out by trained psychiatrists (see Table 2 for the demographic characteristics of referred patients). The majority, 73.1%, of referrals were from first-line GP's (Table 2).

Of the 7619 (42.1%) referred patients who were not assessed at the MEL, several either did not show up, cancelled the appointment or had their appointment cancelled (53%). Moreover, 12.8% were sent back to the physician or institution from which they had been referred, 5.1% went to private offices, 2.1% were referred to general community-based resources, 2% were hospitalized, 1.8% were sent to a crisis center, and 1.6% were referred to a substance use disorder (SUD) community-based resources.

2.3. Diagnostic profile and orientation of patients assessed by the MEL during the study period (1998–2010)

Of the 10,492 assessments carried out at the MEL, the most frequent diagnoses were Major Depressive Disorder (29.4%), Anxiety Disorders (17.6%), and Personality Disorders (14.4%), together representing 61.4% of all assessments (see Table 3 for diagnostic profiles of all patients assessed). In all, 36.4% and 56.4% of all patients assessed were oriented to primary and secondary care services, respectively, following their MEL assessment.

2.4. Data collection

The following information was extracted from the medical records of patients who had been assessed at the MEL from 1998 to 2010: socio-demographic variables (age, gender, and marital status), reason for referral, source of referral (first-line, second-line, emergency, etc.), main psychiatric diagnosis, and orientation following the assessment. This information was compiled into an Access database. Psychiatric diagnoses were established in concordance with DSM-IV diagnostic classification and codes (American Psychiatric Association, 1994), and were based solely on a clinical interview. No questionnaires or standardized diagnostic tool were systematically used.