CAN WE PREVENT UNDER-DIAGNOSIS AND MISDIAGNOSIS OF BIPOLAR AFFECTIVE DISORDER?

Repeat audits to assess the epidemiological change in the Caseload of a Community Mental Health Team when Bipolar Disorder is accurately assessed and diagnosed

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SUMMARY

Background: Bipolar Affective Disorder is frequently under-diagnosed and misdiagnosed, particularly as unipolar depression. This has serious implications on treatment and outcome of the condition. A community mental health team (CMHT) in Bedford, United Kingdom, has therefore reassessed patients to examine whether it is possible to increase the sensitivity of diagnosis of bipolar affective disorder; to identify more cases and to identify them earlier, in order to be able to offer adequate treatment as early as possible.

Method: Standards were decided within the team for the diagnosis of bipolar disorder based on the DSM4 criteria for the diagnosis of Bipolar I and Bipolar II illness. Patients were reassessed and patient data from 2006, 2007, 2010 and 2011, as well as from 2013, with respect to psychiatric diagnoses. The results were audited and analysed in every year in question. The proportions of total bipolar, bipolar I affective disorder and bipolar II affective disorder diagnoses, as well as the proportions of recurrent depressive disorder and other unipolar depression diagnoses were determined.

Results: There was a steady increase in the proportions of both bipolar I and bipolar II diagnoses –from 10.5% in 2006 to 11.0% in 2013 for bipolar I affective disorder, and from 0% in 2006 (4.9% in 2007) to 9.7% in 2013 for bipolar II affective disorder–, and a steady decrease in the proportions of both recurrent depressive disorder and other unipolar depression diagnoses – from 16.1% and 18.7%, respectively, in 2006, to 4.8% and 8.0%, respectively, in 2013.

Discussion: The results confirm that it is possible to increase the sensitivity of bipolar affective disorder diagnosis and that this results in an increased number of diagnoses of the disorder, and a decreased number of diagnoses of unipolar depression. Unexpectedly, the data also showed that increasingly more patients are receiving multiple psychiatric diagnoses.

Conclusions: This paper shows that it is possible to increase the sensitivity of diagnosis of bipolar affective disorder. This may be particularly useful in the light of increasingly more mental health problems being treated exclusively in primary care, since bipolar diagnoses will be less likely to be missed. Better identification, and therefore treatment, of bipolar affective disorder is likely to lead to better social and professional functioning of affected individuals.

Key words: *bipolar disorder - under-diagnosis – misdiagnosis - reassessment*

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INTRODUCTION

Overview

Bipolar affective disorder (BD) is a psychotic illness characterised by mood changes that exceed the normal range. The main symptoms are depression (experienced on average 31.9% of weeks during a mean of 12.8 years of follow-up in BD I (see below), according to Judd et al. 2002 and 50.3% of weeks during a mean of 13.4 years of follow-up in BD II, according to Judd et al. 2003), mania (on average 8.9% of weeks in BD I (Judd et al. 2002)) or hypomania (on average 1.3% of weeks in BD II (Judd et al. 2003)) and mixed states (on average 5.9% of weeks in BD I (Judd et al. 2002) and 2.3% in BD II (Judd et al. 2003)). Furthermore, BD is associated with several co-morbidities, including generalised anxiety disorder (GAD), panic disorder and obsessive-compulsive disorder (OCD) (Perugi et al. 2001), as well as substance abuse (Regier et al. 1990).

BD is thought to lie on a spectrum of disorders, which, according to Akiskal 1996, Tavormina 2005, and Angst 2007, may include unipolar depression at the opposite end. Together with the predominance of depressive over manic episodes and multiple other factors, this leads to frequent under-diagnosis and misdiagnosis of BD – particularly as unipolar depression (Hirschfeld et al. 2003). It has been estimated that up to 69% of patients now known to have BD were misdiagnosed at least once before receiving their current diagnosis (Hirschfeld et al. 2003).

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As alluded to above, two major sub-syndromes of BD have been recognised: bipolar I and II affective disorders (Ayuso-Gutiérrez & Ramos-Brieva 1982) (BD I and BD II, respectively), the latter of which will be the primary focus of this article. However, one should bear in mind that other disorders have been suggested to lie on the bipolar spectrum as well, including temperamental cyclothymia and hyperthymia (Akiskal 1996).

Complications of Bipolar Disorder

There are several complications of BD. Patients suffering from the condition, particularly from BD II, have been described to have a high suicide risk (24% compared to 12% in patients with unipolar major depression) (Rihmer & Kiss 2002). Moreover, in the influential GAMIAN-Europe/BEAM survey I patients with BD reported to have more difficulty finding and securing jobs, as well as greater problems with regards to relationships with family and friends than patients with non-bipolar mood disorders (Morselli & Elgie 2003). Another difference was that BD patients experienced a higher number of hospitalisations (Morselli & Elgie 2003). Furthermore, delayed treatment has been found to increase the risk of developing these complications, notably suicidality (Altamura et al. 2010).

The above illustrates the crucial need for prompt diagnosis and treatment – in order to both decrease mortality and improve quality of life, the best outcome being achieved through early intervention. Importantly, incorrect treatment with antidepressants may push patients towards developing manic symptoms (Peet 1994, Ghaemi et al. 2003) and those of mixed states (Ghaemi et al. 2003). Unsurprisingly, this exacerbates the problem, especially since mixed states carry a particularly high risk of suicide (Rihmer et al. 2008). Other studies on the other hand suggest that the main problem with the use of antidepressants in bipolar disorder is that they may simply not work (Amit & Weizman 2012).

The Current Study

A community mental health team (CMHT) in Bedford, United Kingdom, has therefore carried out several audits to assess whether it is possible to increase the sensitivity of diagnosis of BD in order to identify more cases and as early as possible (see materials and methods). This follows from previous studies that had indicated that most patients with affective disorders were actually within the bipolar spectrum (Tavormina & Agius 2007).

MATERIALS AND METHODS

The data of all patients registered with the Bedford CMHT in the months of November 2006, September 2007, August 2010, June 2011 and February 2013 was analysed with regards to psychiatric diagnosis – particularly looking at the numbers of patients diagnosed with BD–, using a secure, anonymised Microsoft Excel® database that contains all patients' diagnoses. Every patient who had been discharged from the outpatient clinic, had been referred on, or had passed away between audits was excluded from subsequent analyses, but not from previous analyses, in order to obtain an accurate picture of the epidemiology of the outpatient population during the months in question.
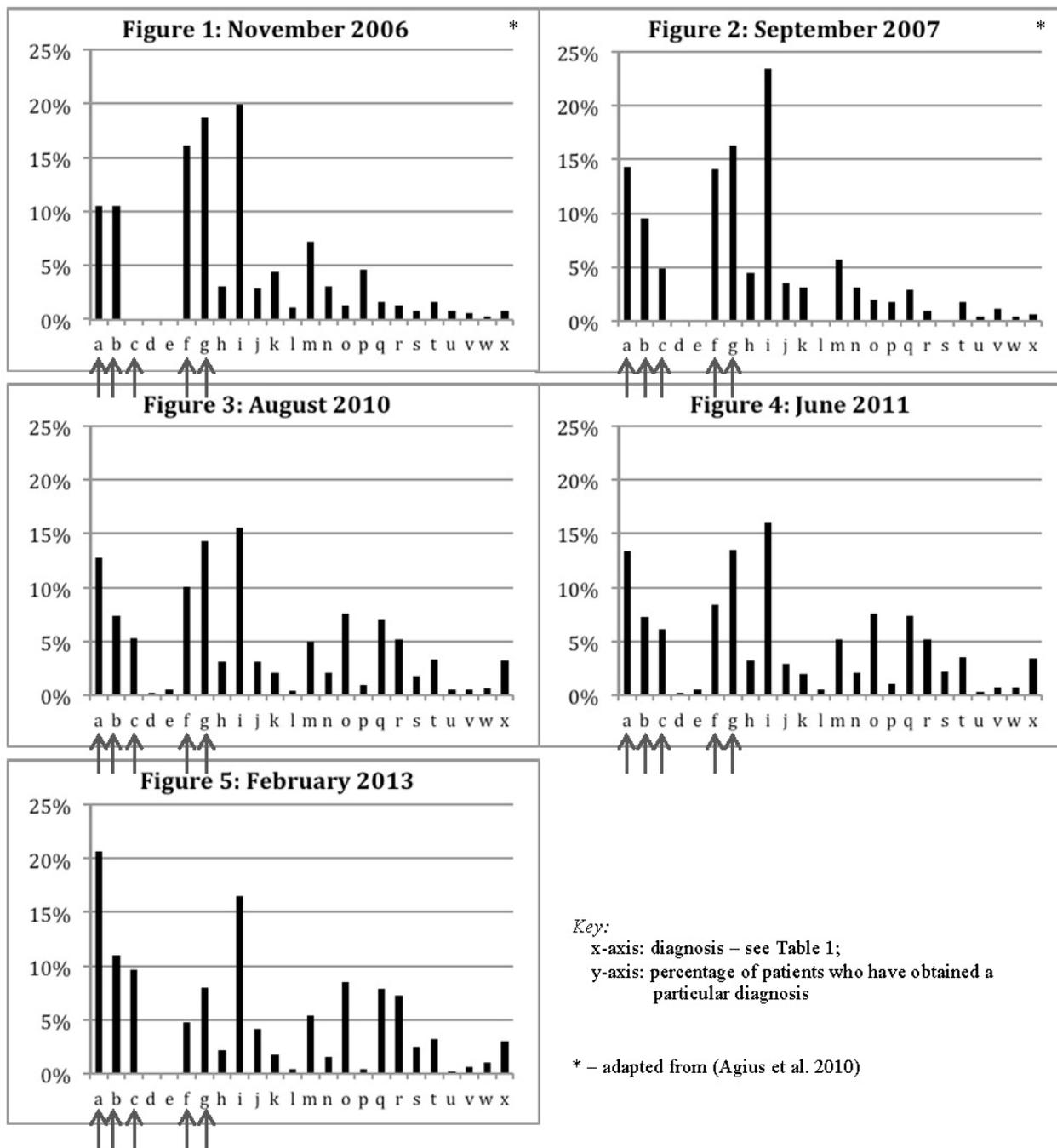
The November 2006 audit (Agius et al. 2010) was performed to assess the baseline of diagnoses before any changes were made to the diagnostic sensitivity. The audit showed that no patients had to that date been diagnosed with BD II. The DSM-IV-TR diagnostic criteria (American Psychiatric Association 2000) were then organised into 29 questions (Agius & Murphy, in print), which were used to reassess all patients with recurrent depressive disorder, anxiety and depression, depressive episodes and psychotic depression in the outpatient clinic, in order to identify whether patients had BD. Patients who had already been diagnosed with BD were also reassessed. The results were subsequently validated by asking patients to complete the Mood Disorder Questionnaire developed by Hirschfeld et al. (Hirschfeld et al. 2000). Furthermore, a full longitudinal history as well as a family history were obtained from each patient. This re-evaluation was completed by February 2013, but preliminary results were obtained in September 2007 after some of the patients had been reviewed (Agius et al. 2010). They showed increases in the numbers of BD diagnoses compared to the baseline, as well as the appearance of several cases of BD II. The results were expected to be even more dramatic after reassessment of all patients. The current audit examines mainly the data from August 2010, June 2011 and February 2013, and re-examines that from November 2006 and September 2007.

In all five datasets, the numbers of every diagnosis were counted and their proportions analysed. If a patient had multiple individual diagnoses, these were counted separately. Conditions that were rare in the database, such as chronic fatigue syndrome, dissociative disorders and Munchausen's syndrome, as well as several others, were grouped in the category 'other'. Furthermore, substance-induced psychosis was included in the 'other psychosis' section, but not in the 'alcohol- and drug-related problems' category. Phobias and panic disorders were classed as anxiety disorders.

The change in the proportions of all diagnoses between 2006 and 2013 is presented below.

Note that the Microsoft Excel® database used contains data for age, sex and ethnicity, but this is not relevant to the discussion at hand, so we are not presenting it here.

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RESULTS

Figures 1-5. Distribution of the diagnoses of mental health problems in a Bedford CMHT from November 2006 to February 2013

The data obtained from a total of 805 patients from August, 809 from June 2011 and 544 from February 2013 was analysed, yielding 1054, 1069 and 775 diagnoses, respectively. Unfortunately, no information on the total patient number from November 2006 and September 2007 was available, but 391 and 453 diagnoses, respectively, were obtained.

The overall analysis focused on the percentages of the following diagnoses: Total Bipolar (a), Bipolar I Affective Disorder (b), Bipolar II Affective Disorder (c), Recurrent Depressive Disorder (f) and Other Unipolar Depression (g) (grey arrows). The remaining diagnoses are shown for comprehensiveness.

As can be seen, the percentage of total BD diagnoses increased steadily from 2006 (10.5%) to 2013 (20.7%), with the exception of September 2007, which showed a higher percentage of BD diagnoses (14.3%) than August 2010 (12.7%) and even June 2011 (13.4%). Possible reasons for this will be discussed below.

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Table 1. Key to x-axes in Figures 1-5

Letter	Diagnosis
a	Total Bipolar
b	Bipolar I Affective Disorder
c	Bipolar II Affective Disorder
d	Cyclothymia
e	Dysthymia
f	Recurrent Depressive Disorder
g	Other Unipolar Depression
h	Psychotic Depression
i	Schizophrenia
j	Schizoaffective Disorder
k	Other Psychosis
l	Delusional Disorders
m	Anxiety and Depression
n	Anxiety Disorders
o	Borderline Personality Disorder
p	Other Personality Disorder
q	OCD (Obsessive-Compulsive Disorder)
r	PTSD (Post-Traumatic Stress Disorder)
s	Eating Disorders
t	Alcohol- and Drug-related Problems
u	Dementias
v	ADHD
w	Autism Spectrum Disorders
x	Other

Furthermore, there was a continual increase in the percentage of BD II diagnoses throughout the years; there were none present in 2006, while in 2013 they represented 9.7% of all diagnoses made.

Although the proportion of patients diagnosed with BD I increased overall from 10.5% in 2006 to 11.0% in 2013, it first decreased from 10.5% in 2006 to 7.3% in 2011. One possible reason for this is a change in the actual patient population, in addition to changes in diagnostic sensitivity.

Two other conditions that lie on the bipolar spectrum, namely cyclothymia and dysthymia, were recognised in 2010 and 2011 but not in the remaining years. Cyclothymia (d) was present in 0.2% of patients in both 2010 and 2011, and dysthymia (e) was present in 0.6% of patients in 2010 and in 0.5% of patients in 2011. This may be because the disorders were not recognised as part of the bipolar spectrum in 2006 and 2007, and may have been re-diagnosed as BD II in 2013. Equally, these patients may not have been registered with the CMHT in 2006, 2007 and 2013.

As predicted, as more patients were diagnosed with BD, there was a concurrent steady decrease in the percentage of patients identified as having recurrent depressive disorder and other unipolar depression, from 16.1% and 18.7%, respectively, in 2006, to 4.8% and 8.0%, respectively, in 2013.

DISCUSSION

Diagnosis of Bipolar Disorder

The authors' expectations have been fulfilled: reassessment of all patients with the aforementioned conditions has indeed yielded more BD diagnoses, especially BD II. Since the analysis in 2007 (Agius et al. 2010), the trend of an increasing number of BD diagnoses has continued as more patients were re-evaluated, thus confirming the prediction that it is possible to increase the sensitivity of BD diagnosis and that this results in an increased number of BD diagnoses and a decreased number of diagnoses of unipolar depression. The hope now is that fewer patients who actually suffer from BD will be misdiagnosed and incorrectly treated, or even entirely missed and not treated at all. This result is also in keeping with previous studies, including those conducted by Tavormina and Agius in 2007 (Tavormina & Agius 2007) mentioned above, and by Kaye in 2005 (Kaye 2005).

The authors of this paper suggest that this increased diagnostic sensitivity should be applied more widely, including in primary care, consistent with what has been proposed previously (Agius et al. 2010). The aim would be to identify BD patients early in order to be able to treat them early, and therefore to reduce mortality and morbidity.

One of the authors' concerns was that the adjusted diagnostic criteria could potentially lead to over-diagnosis of BD II, in line with cautions raised by, for example, Zimmerman, concerning possible over-diagnosis of BD when lowering the diagnostic threshold (Zimmerman 2012). The concern, however, is unlikely to be justified with regards to the study at hand, especially since there are still more cases of BD I than BD II in all years –even in 2013 when the number of BD diagnoses should be as close to the truth as possible–, and since we consider the diagnosis of BD I to be rather more indubitable.

Unipolar depression has been shown to have the potential to develop into bipolar disorder (Akiskal et al. 1995). Critics may argue that this rather than the increased diagnostic sensitivity accounts for the increase in bipolar cases identified. However, we are confident that, if at all, a relatively constant proportion of patients with unipolar depression develops bipolar disorder every year, and that there should therefore be no differences between the years 2006 and 2013 in the size of this particular group of patients.

Limitations

1) The main limitation in this study is that the data from 2010, 2011 and 2013 was analysed by a different individual than the data from 2006 and 2007. The individual who analysed the 2010-2013 data was unable to access the database as it had been in 2006 and 2007, only being able to access the already counted diagnoses.

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This makes comparison between the different sets of years very difficult. It is therefore reassuring that the expected trend of increases in BD I and especially BD II diagnoses is evident even from 2010 to 2013, as is the trend of decreases in the percentages of patients diagnosed with unipolar depression and recurrent depressive disorder. The authors are therefore confident that the change in the proportions of diagnoses is genuine.

2) A further shortcoming of this study is that the patient population itself did not remain exactly the same. Although it is assumed that it stayed relatively constant, it is possible that the reason for the increasing proportions of BD diagnoses is simply that more patients with BD were registered with the CMHT in February 2013 than in November 2006. One would have had to analyse only those patients in February 2013 whose diagnoses had already been studied in November 2006, in order to control this limitation. However, due to the anonymity of the data used in the analyses, this was impossible to undertake. Despite this drawback, the trend observed is very consistent. Furthermore, only a relatively short period of time elapsed between audits, which makes it unlikely for a population change from one analysis to the next –rather than the increased diagnostic sensitivity– to be accountable for the results obtained. Therefore, and after considering these limitations, the authors are confident that the conclusions drawn are valid.

CONCLUSION

In this paper we have shown that it is possible to increase the sensitivity of diagnosis of bipolar affective disorder, leading to less under-diagnosis and fewer misdiagnoses of the condition. This may be particularly useful in the light of increasingly more mental health problems being treated exclusively in primary care, since bipolar diagnoses will be less likely to be missed. Application of the increased diagnostic sensitivity will have implications on treatment, since fewer patients would erroneously be treated for unipolar depression, and instead correctly treated for bipolar disorder. Better identification and treatment of bipolar affective disorder is likely to lead to a reduction in both mortality by suicide and morbidity, which is expected to result in better social and professional functioning of individuals affected by this condition.

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