



Bipolar Spectrum in Patients with Conversion Disorder

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Received 2020 July 13; Revised 2020 July 20; Accepted 2020 July 31.

Abstract

Background: The frequency of bipolar spectrum in patients with conversion disorder is not well known, while it is important to be aware of comorbid bipolarity in the management of conversion disorder.

Objectives: The study aimed to identify the frequency of bipolar spectrum disorder among people with conversion disorder and the factors associated with this comorbidity.

Methods: The participants were 96 consecutive patients aged 18 - 65 years, referring to the emergency department or admitted to the psychiatric wards of two university general hospitals in Tehran, Iran, in 2019. Patients fulfilled the DSM-IV criteria for conversion disorder based on the structured clinical interview (SCID). The Mood Disorder questionnaire (MDQ) was used to identify bipolar spectrum disorder. Demographic characteristics and other relevant correlated factors were also recorded using a checklist. Data were analyzed using Pearson chi-square/Fisher's exact test and logistic regression model.

Results: The frequency of bipolar spectrum disorder based on the MDQ was 35.4% in patients with conversion disorder. The results of the logistic regression model using the Backward Conditional method showed that only two variables, namely antidepressant-induced mania/hypomania (OR = 39; CI 95%: 4.56 - 333.7) and history of hospitalization in the psychiatric ward (OR = 7.1, CI 95%: 2.05 - 24.65), remained as associated factors after controlling for other variables.

Conclusions: Our study showed a higher frequency of bipolar spectrum disorder in patients with conversion disorder than did previous epidemiological studies in Iran and other countries. Such significant comorbidity should discourage potentially harmful off-label use of antidepressants for the treatment of conversion disorder instead of looking for other underlying psychiatric or social problems. Further research is suggested in this area.

Keywords: Bipolar Spectrum, Comorbidity, Conversion Disorder, Mood Disorder Questionnaire

1. Background

The presence of comorbid psychiatric disorder in patients suffering from conversion disorder is reported to be between 31 and 71% (1). The most common comorbid psychiatric disorder was reported to be a major depressive disorder (45% - 56%) (2). The prevalence of bipolar I disorder, bipolar II disorder, and sub-threshold bipolar disorder is respectively 1%, 1.1%, and 2.4% (3). On the other hand, bipolar spectrum disorder may be seen among 4% - 6% of the general population (4-6). Despite the high prevalence of bipolar disorder, it has been underestimated in primary care centers (6). In a study conducted using the Mood Disorder questionnaire (MDQ), the prevalence of bipolar disorder was 8% - 11.5% in primary care centers. From the subjects who screened positive for bipolar disorder, 72% sought treatment for their symptoms, but only 8.4% re-

ported having been diagnosed as bipolar disorder (7). A few studies have investigated the frequency of bipolar disorder in patients with conversion disorder. Gerardo et al. found that 4% of patients with pseudo-seizure had bipolar disorder (2). Karamustafalioglu et al. (8) showed 28% of bipolar disorder comorbidities in patients with conversion disorder.

Treatment with antidepressant medication is common for conversion disorder and other somatoform disorders (9-11). In patients with depression, antidepressants may be followed by subsequent mania/hypomania (12), which indicates the importance of appropriate evaluation for bipolarity risks before the antidepressant prescription. As mentioned earlier, failure in recognizing comorbid bipolar spectrum disorder is not uncommon in general and may also happen in conversion patients. This can lead to subsequent hypomania/mania, even with rapid cycling

features in some of those patients.

2. Objectives

This study aimed to assess the frequency of bipolar spectrum among patients with conversion disorder.

3. Methods

A cross-sectional study was carried out in two hospitals affiliated to Shahid Beheshti University of Medical Sciences, Tehran, Iran, in 2017. The research was reviewed and received approval code IR.SBMU.MSP.REC.1395.311 from the Ethics Committee of the Faculty of Medicine of Shahid Beheshti University of Medical Sciences. All 96 participants who received a primary diagnosis of conversion disorder gave oral and written informed consent before inclusion into the study. Then, they were enrolled and visited by one of the researchers after being explained about the scope of the study and being ensured about the confidentiality of information.

A researcher used a semi-structured interview to record the sociodemographic characteristics, previous psychiatric history, and family history for this study. The diagnosis of conversion disorder was confirmed by the Structured Clinical Interview for DSM-IV (SCID) whose reliability and validity have been verified in Iran (13). The inclusion criteria allowed all 18-to-65-year-old patients suffering from conversion disorder based on SCID to enter the study. The exclusion criteria left out from this research all patients with intellectual disability, dementia, and the presence of neurological or physical disorders that might directly cause neurological symptoms. We also excluded all patients with psychiatric disorders due to general medical conditions, acute psychotic disorder, acute substance intoxication, and acute substance withdrawal. The screening of bipolar spectrum disorder was conducted through the MDQ. The reliability and validity of this tool have been verified in Iran, too (14).

3.1. Statistical Analysis

Statistical analysis was performed using SPSS version 20. Descriptive results were reported by mean \pm SD/frequency (percentage). For comparing the demographic and clinical features between the groups of patients with and without bipolar disorder, the Pearson chi-square or Fisher exact test was used. The odds ratios (OR) with 95% confidence intervals (CI) were calculated with logistic regression to assess the associations between the demographic/clinical characteristics and the risk of bipolar disorder. An OR of more than one showed a higher risk of

bipolar disorder. The significant factors examined by the Pearson chi-square test were selected to enter the model. According to the model fitting rule, non-significant factors were removed from the model by the backward procedure. $P < 0.05$ was considered statistically significant.

4. Results

The participants were 96 patients with conversion disorder, including 34 (35.4%) patients with and 62 (64.6%) patients without bipolar disorder based on the MDQ. The mean age of the patients was 37.3 ± 12.7 years. The majority of patients were male, urban, primary, or high school graduates, married, and housekeepers. There were non-significant differences in sociodemographic characteristics between patients with and without bipolar disorder, except for marital status ($P = 0.049$), as summarized in [Table 1](#).

The most common conversion-related clinical presentation was convulsions [$n = 34$ (35.4%)], followed by paralysis [$n = 21$ (21.9%)], aphonia [$n = 11$ (11.5%)], and loss of consciousness or fainting [$n = 10$ (10.4%)]. The least common clinical presentation was difficulty swallowing [$n = 1$ (1%)].

[Table 2](#) shows the association between clinical features and factors of bipolar spectrum diagnosis among patients with conversion disorder. The chi-square test showed that previous suicide attempts ($P < 0.0001$), past psychiatric hospitalization ($P < 0.0001$), history of smoking ($P = 0.007$), atypical depressive symptoms ($P = 0.001$), psychotic major depressive episodes ($P < 0.0001$), first-degree relative with bipolar disorder ($P < 0.0001$), antidepressant-induced mania or hypomania ($P < 0.0001$), hyperthymic personality ($P = 0.027$), and lack of response of depression to more than two antidepressant treatment trials ($P = 0.020$) were significantly more frequent in conversion patients with bipolar disorder than in patients without bipolar comorbidity. Recurrent major depressive episodes ($P = 0.022$) was significantly lower in patients with bipolar disorder than in patients without bipolar disorder.

The logistic regression model, which included all significant factors as predictors, exhibited only "antidepressant-induced mania or hypomania" (OR = 31, CI = 1.72 - 558) had a significant effect ($P = 0.020$) on bipolar disorder among patients with conversion disorder ([Table 2](#)). After backward model fitting, two significant factors remained, including "history of hospitalization in the psychiatric ward" (OR = 7.1, 95% CI: 2.05 - 24.65) and "history of antidepressant-induced mania or hypomania" (OR = 39; 95% CI: 4.56 - 333.7).

Table 1. Association Between Sociodemographic Characteristics and Factors of Bipolar Spectrum Diagnosis Among Patients with Conversion Disorder (N = 96)^a

	Total (N = 96)	With Bipolar Disorder (N = 34)	Without Bipolar Disorder (N = 62)	P Value	OR (CI)	P Value
Sex				0.328 ^b	-	-
Male	68 (70.8)	22 (64.7)	46 (74.2)			
Female	28 (29.2)	12 (35.3)	16 (25.8)			
Marital status				0.049 ^b	0.10 (0.01-1.05)	0.055
Single	29 (30.2)	9 (26.5)	20 (32.3)			
Married	59 (61.5)	19 (55.9)	40 (64.5)			
Divorced	8 (8.3)	6 (17.6)	2 (3.2)			
Education				0.701 ^c	-	-
Illiterate	14 (14.6)	6 (17.6)	8 (12.9)			
Primary school	39 (40.6)	15 (44.1)	24 (38.7)			
High school	30 (31.3)	10 (29.4)	20 (32.3)			
University	13 (13.5)	3 (8.8)	10 (16.1)			
Occupation				0.373 ^c	-	-
College student	2 (2.1)	0 (0.0)	2 (3.2)			
Housekeeper	42 (43.8)	18 (52.9)	24 (38.7)			
Employed	29 (30.2)	8 (23.5)	22 (35.5)			
Unemployed	23 (24.0)	8 (23.5)	14 (22.6)			
Residence				0.054 ^c	-	-
Urban	94 (97.9)	32 (94.1)	62 (100.0)			
Rural	2 (2.1)	2 (5.9)	0 (0.0)			

^aValues are expressed as No. (%).^bChi-square.^cF, Fisher's exact test; OR (CI), odds ratio (95% confidence interval) of the logistic regression model with all significant demographic and clinical characteristics as predictors and bipolar dummy variable as the response variable.

5. Discussion

This is the first study in Iran estimating the frequency of bipolar spectrum disorder in patients with conversion disorder. The results of this study showed that more than one-third of patients with conversion disorder (35.4%) experienced bipolar spectrum disorder. This frequency is much more than the patients' report (12.7%) based on their past psychiatric diagnosis. Although the prevalence of bipolar disorder was 12.7% among all participants, 34 (35.4%) patients with conversion disorder screened positive for the bipolar disorder based on the MDQ. This is comparable with the results by Oguzet et al. and Yaylaet et al. from Turkey, who found that the overall prevalence of the bipolar disorder in patients with conversion disorder was 28% and 27.8%, respectively (1, 10). In our study, the frequency of bipolar disorder is higher than in previous studies, which might be due to that our hospitals are the referral centers for severe mental disorders, including bipolar disorder.

In line with previous studies (15, 16), in the present

study, the majority of the patients with conversion disorder were female (70.8%), married (61.5%), and housekeeper (42%), and the lowest rate of conversion disorder was seen in higher educated persons. In our study, only 2% of the patients were from rural areas. This can be explained as our centers are in the capital city of Tehran. In recent years, the number of psychiatrists in small towns has increased considerably, leading to fewer referrals to mega-cities.

Previous studies showed that suicide attempts are frequent in patients with conversion disorder (17-20). Consistent with previous studies, in our patients, the frequency of suicide attempts was much higher in patients with conversion disorder than in the general population (18.8% and 0.27%, respectively) (21).

By using the MDQ, Amin-Esmaeili et al. (22) estimated that the prevalence of bipolar spectrum disorder varied between 4.7% and 10.8% in the general population. This variation was related to the different levels of functional disabilities measured by the questionnaire.

A systematic review and meta-analysis conducted by

Table 2. Association Between Clinical Features and Factors of Bipolar Spectrum Diagnosis Among Patients with Conversion Disorder (N = 96)^a

	Total (N = 96)	With Bipolar Disorder (N = 34)	Without Bipolar Disorder (N = 62)	P Value	OR (CI)	P Value
Previous suicide attempts	18 (18.8)	14 (41.2)	4 (6.5)	< 0.0001 ^b	0.98 (0.07 - 12.56)	0.988
History of psychiatric disorder	71 (74.0)	29 (85.3)	42 (67.7)	0.061 ^b	-	-
Previous psychiatric treatment	74 (77.1)	29 (85.3)	45 (72.6)	0.156 ^b	-	-
Past psychiatric hospitalization	25 (26.0)	19 (55.9)	6 (9.7)	< 0.0001 ^b	2.58 (0.38 - 17.41)	0.329
History of alcohol use	17 (17.7)	9 (26.5)	8 (12.9)	0.096 ^b	-	-
History of other substance use	13 (13.5)	8 (23.5)	5 (8.1)	0.058 ^b	-	-
History of smoking	24 (25.0)	14 (41.2)	10 (16.1)	0.007 ^b	2.87 (0.62 - 13.3)	0.176
Previous antidepressant use	60 (62.5)	18 (52.9)	42 (67.7)	0.152 ^b	-	-
Postpartum depression	9 (9.4)	6 (17.6)	3 (4.8)	0.064 ^c	-	-
Atypical depressive symptoms	35 (36.5)	20 (58.8)	15 (24.2)	0.001 ^b	0.32 (0.05 - 2.18)	0.243
Psychotic major depressive episodes	14 (14.6)	12 (35.3)	2 (3.2)	< 0.0001 ^c	5.83 (0.65 - 52.3)	0.115
First-degree relative with bipolar disorder	33 (34.4)	20 (58.8)	13 (21.0)	< 0.0001 ^b	1.45 (0.34 - 6.26)	0.614
Antidepressant wear-off	3 (3.1)	2 (5.9)	1 (1.6)	0.250 ^c	-	-
Antidepressant-induced mania or hypomania	18 (18.8)	17 (50.0)	1 (1.6)	< 0.0001 ^b	31 (1.72 - 558)	0.020
Hyperthymic personality	24 (25.0)	13 (38.2)	11 (17.7)	0.027 ^b	2.56 (0.47 - 14)	0.277
Brief major depressive episodes (< 3 months)	51 (53.1)	14 (41.2)	37 (59.7)	0.082 ^b	0.93 (0.76 - 1.14)	0.493
Recurrent major depressive episodes (> 3)	47 (49.0)	22 (64.7)	25 (40.3)	0.022 ^b	1.08 (0.93 - 1.26)	0.322
Early age of the onset of major depressive episodes (< age 25)	52 (54.2)	23 (67.6)	29 (46.8)	0.051 ^b	-	-
Lack of response of depression to > 2 antidepressant treatment trials	6 (6.3)	5 (14.7)	1 (1.6)	0.020 ^c	1.55 (0.66 - 3.635)	0.314

^a Values are expressed as No. (%).

^b Chi-square.

^c F, Fisher's exact test; OR (CI), odds ratio (95% confidence interval) of the logistic regression model with all significant demographic and clinical characteristics as predictors and bipolar dummy variable as the response variable.

Kessing et al. in 2017 reported that there are no predictors that are consistently and clearly related to the comorbidity of bipolar disorder with conversion disorder in various studies (23). While in our study among patients with conversion disorder, the "history of hospitalization in the psychiatric ward" and "antidepressant-induced mania or hypomania" were found to be the predictors of bipolarity.

The medical staff should be sensitized about the administration of antidepressants to people with conversion disorder. Such patients should be probed for the history of bipolar spectrum disorder to prevent mood instability,

including a range of unwanted psychiatric complexities such as switching to mania/hypomania.

Our study suffers an important limitation. It was conducted on patients who were referred to two university hospitals, which are among the reference centers for complicated psychiatric cases in Tehran. Therefore, caution should be made in generalizing the results to the entire population of the country. We recommend further research in other settings with a more rigorous methodology.

5.1. Conclusions

Conversion disorder is still common in the developing world. There is some controversy about whether conversion disorder and bipolar disorder both may have common biological and psychological etiologies (15). Specifically, when it comes to people presenting with conversion disorder, family and social conflicts should be worked out even more meticulously instead of the rapid administration of medications, especially antidepressants.

Acknowledgments

We are grateful to all patients who cooperated with us in conducting this research. We also appreciate Dr. Payam Arya, MD, for his kind assistance in this study. We thank Mrs. Samaneh Mansouri for her additional help in data analysis.

Footnotes

Authors' Contribution: Seyed Mehdi Samimi Ardestani did concept, drafting, and approving the last version. Mohammad Taghi Yasamy did concept, drafting, methodology, and approving the last version. Nahid Borna did concept, data collection, drafting, and approving the last version. Jafar Fili did drafting, data collection, and approving the last version. Roghaye Zare did drafting, methodology, statistical analysis, and approving the last version.

Conflict of Interests: The authors declare no conflict of interest.

Ethical Approval: The ethical approval code was IR.SBMU.MSP.REC.1395.311.

Funding/Support: Researchers received no funding.

Informed Consent: We obtained oral and written informed consent after giving full and clear information to the participants.

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