Psychiatry Research 197 (2012) 19–22

Contents lists available at SciVerse ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Age-of-onset of schizophrenic and obsessive-compulsive symptoms in patients with schizo-obsessive disorder

Sarit Faragian [a], Camil Fuchs [b], Artashes Pashinian [a,c], Ronit Weizman [d,e], Abraham Weizman [e,f], Michael Poyurovsky [a,c,*]

[a] Tirat Carmel Mental Health Center, POB 9, Tirat Carmel 30200, Israel
[b] Department of Statistics and Operations Research, Tel Aviv University, Tel Aviv 69978, Israel
[c] Rappaport Faculty of Medicine, Technion Israel Institute of Technology, Haifa, Israel
[d] Clinical Psychopharmacology Unit, Tel Aviv Community Mental Health Center, Tel Aviv, Israel
[e] Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel
[f] Laboratory of Biological Psychiatry, Felsenstein Medical ResearchCenter. Geha Psychiatric Hospital, Petah Tiqva, Israel

ARTICLE INFO

Article history:
Received 10 July 2011
Received in revised form 16 February 2012
Accepted 22 February 2012

Keywords:
Schizophrenia
Obsessive-compulsive
Psychotic symptoms
Age-of-onset
Schizo-obsessive, temporal sequence

ABSTRACT

Obsessive-compulsive symptoms (OCS) are prevalent, persistent, clinically significant phenomena in schizophrenia. To facilitate the understanding of their temporal interrelationship, we assessed age-of-onset of schizophrenic and obsessive-compulsive symptoms among 133 patients admitted to Tirat Carmel Mental Health Center (Israel) during the years 1999–2010 who met DSM-IV criteria for both schizophrenic disorder and obsessive-compulsive disorder (OCD). The mean age-of-onset of the first clinically significant OCS was significantly earlier than the mean age-of onset of the first psychotic symptoms. An earlier onset of OCS was detected in men, but not in women. In sixty-four of 133 patients OCS preceded the first psychotic symptoms, in 37 patients OCS followed them, and in 32 patients OCS and psychotic symptoms occurred simultaneously. A sub-analysis of 52 first-episode schizophrenia patients revealed that OCS emerged approximately 3 years earlier than psychotic symptoms. Notably, schizo-obsessive patients had earlier mean age-of-onset of first psychotic symptoms than a comparative group of 113 non-OCD schizophrenia patients matched for age, gender and number of hospitalization. Earlier emergence of OCS than schizophrenic symptoms in schizo-obsessive patients suggests that they are independent of psychosis and are not consequent to schizophrenia. In addition, the presence of OCS seems to modify clinical features of schizophrenia accounting for earlier onset of first psychotic symptoms, however a replication of these findings is needed.

1. Introduction

Although obsessive-compulsive symptoms (OCS) are not considered primary features of schizophrenia, they are highly prevalent, independent of psychosis, and may affect clinical course, treatment response and prognosis of schizophrenia patients. Although mechanisms underlying the development of OCS in schizophrenia are yet to be clarified, it has been suggested that they may be related to the chronicity of schizophrenia or to the OCS-inducing potential of atypical antipsychotic agents (for review Poyurovsky et al., 2004; Lysaker and Whitney, 2009). Evaluation of age-of-onset of schizophrenic and obsessive-compulsive symptoms is imperative to facilitate understanding of their temporal inter-relationships among schizophrenia patients with comorbid obsessive-compulsive disorder ("schizo-obsessive"). In addition, age-of-onset may have neurobiological, prognostic and treatment implications.

A meta-analysis of four studies that report mean age-of-onset of schizophrenic and obsessive-compulsive symptoms in schizo-obsessive patients showed that mean age of OCS onset was lower than the mean age of schizophrenia onset (19.8 and 22.4 years, respectively) (Devulapalli et al., 2008). This difference fell short of statistical significance ($p = 0.066$), most probably due to insufficient power (pooled sample size = 45 patients). Devulapalli et al. also identified eight studies that reported the psychiatric history of schizo-obsessive patients diagnosed with obsessive-compulsive disorder (OCD) first, schizophrenia first or both disorders simultaneously. When the samples of these studies were analyzed collectively, the following results emerged: 71 (48%) of 148 patients were diagnosed with OCD prior to schizophrenia, 45 (30.4%) were diagnosed with schizophrenia first and the remaining 32 (21.6%) were diagnosed with both disorders concurrently. The small number of studies and lack of information regarding the method of determination of age-of-onset in some studies are limitations of these meta-analyses.

Several additional reports not included in the Devulapalli et al. meta-analysis substantiated the revealed tendency of earlier OCS than schizophrenia onset in schizo-obsessive patients. Seedath et al.

* Corresponding author at: Tirat Carmel Mental Health Center, POB 9, Tirat Carmel 30200, Israel. Tel.: +972 4 8559349; fax: +972 4 8559330.
E-mail address: poyurovs@tx.technion.ac.il (M. Poyurovsky).

0165-1781/$ – see front matter © 2012 Elsevier Ireland Ltd. All rights reserved.
doi:10.1016/j.psychres.2012.02.024

(2007) conducted a genetic study of schizophrenia, and identified 53 (of 400) patients who in addition to schizophrenia or schizo-affective disorder also had OCD. The mean age-of-onset of OCS was significantly earlier than the mean age-of-onset of schizophrenia (18.5 vs. 22.0 years, respectively; $p<0.0001$). Likewise, Sterk et al. (2010) reported an earlier mean age-of-onset of obsessive-compulsive than schizophrenic symptoms in a small group of eighteen patients with first-episode schizophrenia or a related psychotic disorder (18.5 ± 5.6 vs. 19.9 ± 3.7 years; $p>0.05$). Notably, one of the possible explanations for earlier age of onset of OCS in schizophrenia patients is that OCS may be a part of the prodromal stage of schizophrenia.

The main aim of the present study was to further investigate age-of-onset of schizophrenic and obsessive-compulsive symptoms in patients who meet criteria for both disorders. In addition, we assessed age of schizophrenia onset in a comparison group of non-OCS schizophrenia patients to determine a putative modifying effect of OCS on age-of-onset of schizophrenia This study is part of an ongoing project aimed to provide comparative clinical, neurobiological and treatment characteristics of schizophrenia patients with and without OCS.

2. Experimental materials and methods

2.1. Patients

We conducted a systematic assessment of age-of-onset of schizophrenic and obsessive-compulsive symptoms among patients who were consecutively admitted to Tirat Carmel Mental Health Center (Israel) during the years 1999–2010 due to acute exacerbation of psychosis and who met DSM-IV criteria for both schizophrenic disorder and OCD. Patients with affective and organic mental disorders or drug- or alcohol-induced psychoses were not included. The total study sample included. 133 patients, that is currently the largest group of schizo-obsessive patients studied. We also recruited schizophrenia patients without OCD ($N=113$), matched to the schizo-obsessive group for age (±3 years), gender and number of hospitalizations, and admitted to the same treatment facility during the same time period. The enrollment of the two schizophrenia groups matched for key demographic and clinical characteristics made it possible to examine the effect of OCS on age-of-onset of schizophrenia.

2.2. Assessments

The Structured Clinical Interview for DSM-IV Axis-I disorders, Patient Edition (SCID-I/P) (First et al., 1995) was used for the diagnoses of both schizophrenic disorder and OCD. All participants underwent a direct clinical interview. Patients from the two schizophrenia groups were interviewed after resolution of acute psychosis, when they were cooperative enough to undergo a structured clinical interview.

Severity and content of current OCS were evaluated using the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), including the symptom checklist incorporated into the Y-BOCS (Goodman et al., 1989). To be included in the schizo-obsessive group, patients had to have current typical OCS, that is time-consuming (≥1 h), distressful obsessions and/or compulsions as ascertained by the symptom checklist, which significantly interfered with patient's functioning. For a patient to be included in the schizo-obsessive group, we set the duration criterion for OCS at ≥6 months. If OCS were related to the content of delusions or formal thought disorders, we required the presence of additional typical OCS (from the Y-BOCS checklist). Severity of schizophrenic symptoms was assessed with the Schedule for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984) and Negative Symptoms (SANS) (Andreasen, 1983), and the Clinical Global Impression (CGI) scale for psychosis (Guy, 1976).

Age of onset of schizophrenia was determined as the occurrence of first psychotic symptoms, while age of onset of OCD was determined as the occurrence of first clinically significant obsessions and/or compulsions. Obsessive-compulsive symptoms were defined as antecedent if obsessions and/or compulsions occurred at least one year before the onset of the first psychotic symptoms. Determination of age-of-onset and the interval between the two disorders were based on analysis of retrospective reports obtained from direct patient interviews. In addition, we collected information from all available sources including medical records, interviews with family members and treating clinicians.

To improve accuracy of the assessment of age-of-onset we followed Knauper et al. (1999) and used a series of questions to avoid implausible response patterns attained when using the standard age-of-onset question. The sequence began with a question aimed to emphasize the importance of accurate responses: "Can you remember the exact age of the very first time you experienced psychotic symptoms like hearing voices or a feeling of persecution, and symptoms of OCD, that is repetitive thoughts and/or rituals?". Respondents who answered "no" were encouraged to try and pinpoint the emergence of initial symptoms by moving up the age range incrementally (e.g., "Was it before you first started school? Was it before you became a teenager?"). Age-of-onset was set at the higher age. Experimental research has shown that this sequence of questions yields responses with a much more conceivable age-of-onset distribution than the standard age-of-onset question (Knauper et al., 1999). A similar memory-priming method was employed for the interviews of patients' relatives.

The assessment of age-of-onset was conducted by a clinical psychologist (SF), and clinical ratings were conducted by a psychiatrist (AP) with experience in both schizophrenia and OCD. The study was approved by the Institutional Review Board of Tirat Carmel Mental Health Center. All participants provided written informed consent after receiving a full explanation of the study protocol.

2.3. Statistical analysis

The statistical analyses included Student's *t*-test, Cohen *d* effect size (ES, small, 0–0.2; medium, 0.2–0.5; large, 0.5–0.8), Pearson's χ^2 test, Mann–Whitney test and binomial for direct comparisons, as well as regression analysis to control for possible differences in gender, number of hospitalizations and for the time elapsed between the age of onset and the age of the interview. Due to the pilot nature of the study, no correction for possible Type I error was performed.

3. Results

3.1. Demographic and clinical characteristics

The schizo-obsessive group included 97 men and 36 women, mean age 31.1 ± 8.7 years, with mean duration of illness 10.3 ± 7.9 years and mean number of hospitalizations 2.9 ± 2.6 (Table 1). Roughly 75% of the schizophrenia groups with and without OCD were men. They had a similar mean age at interview, number of hospitalizations,

Table 1
Demographic and clinical characteristics of the study participants.

Variable	Schizophrenia with OCD ($N=133$)	Schizophrenia without OCD ($N=113$)	Statistic (d.f. = 244)
Gender (M/F)	97/36	81/32	$\chi^2=0.05$; $p=0.83$[a]
Age, mean (S.D.), y	30.1 (8.7)	29.6 (9.3)	$t=0.51$; $p=0.61$
No. hospitalizations	2.9 (2.6)	2.5 (2.7)	$t=1.25$; $p=0.21$
Duration, mean (S.D.), y	10.3 (7.9)	6.4 (8.0)	$t=3.70$; $p=0.00$
Age at interview, y	30.1 (8.7)	29.6 (9.3)	$t=0.51$; $p=0.61$
Education, y	11.7 (2.0)	12.0(2.0)	$t=1.10$; $p=0.27$
Married	28	22	$\chi^2=0.09$, $p=0.76$
Single/divorced	105	91	
Full/partial	38	37	$\chi^2=0.49$, $p=0.48$
Unemployed	95	76	
SAPS	7.9 (3.6)	7.3(3.9)	$t=1.25$, $p=0.21$
SANS	11.3(4.2)	11.5(4.8)	$t=0.34$, $p=0.73$
CGI	4.1 (0.8)	4.1 (0.9)	$t=0.10$; $p=0.93$
Y-BOCS obsessions	10.6(4.6)	0.1 (0.5)	$t=24.52$; $p=0.00$
Y-BOCS compulsions	9.5 (4.7)	0.2(0.8)	$t=22.72$; $p=0.00$
Y-BOCS total	20.0(8.0)	0.1 (0.7)	$t=28.43$; $p=0.00$

Abbreviations: OCD = obsessive-compulsive disorder, SAPS = Schedule for the Assessment of Positive Symptoms, SANS = Schedule for the Assessment of Negative Symptoms, CGI = Clinical Global Impression scale, Y-BOCS = Yale-Brown Obsessive-Compulsive Scale, d.f. = degree of freedom.
[a] d.f. = 1.