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Sensory phenomena associated with repetitive behaviors in obsessive-compulsive disorder: An exploratory study of 1001 patients

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ABSTRACT

A substantial number of patients with obsessive-compulsive disorder (OCD) report compulsions that are preceded not by obsessions but by subjective experiences known as sensory phenomena. This study aimed to investigate the frequency, severity, and age at onset of sensory phenomena in OCD, as well as to compare OCD patients with and without sensory phenomena in terms of clinical characteristics. We assessed 1,001 consecutive OCD patients, using instruments designed to evaluate the frequency/severity of OC symptoms, tics, anxiety, depression, level of insight and presence/severity of sensory phenomena. All together, 651 (65.0%) subjects reported at least one type of sensory phenomena preceding the repetitive behaviors. Considering the sensory phenomena subtypes, 371 (57.0%) patients had musculoskeletal sensations, 519 (79.7%) had externally triggered "just-right" perceptions, 176 (27.0%) presented internally triggered "just right," 144 (22.1%) had an "energy release," and 240 (36.9%) patients had an "urge only" phenomenon. Sensory phenomena were described as being as more severe than were obsessions by 102(15.7%) patients. Logistic regression analysis showed that the following characteristics were associated with the presence of sensory phenomena: higher frequency and greater severity of the symmetry/ordering/arranging and contamination/washing symptom dimensions; comorbid Tourette syndrome, and a family history of tic disorders. These data suggest that sensory phenomena constitute a poorly understood psychopathological aspect of OCD that merits further investigation.

1. Introduction

Since the earliest reports, obsessions and compulsions have been considered the cardinal symptoms of obsessive-compulsive disorder (OCD), independent of cultural differences (Esquirol, 1838; Fontenelle et al., 2004). However, recent studies have demonstrated that many OCD features, including the nature of the symptoms, course of the disease, and treatment response, are quite variable. This heterogeneity might have confounded clinical and biological investigations, explaining why findings have been so inconsistent across different OCD studies.

Accordingly, various OCD subtypes have been proposed, including those based on age at OCD onset (de Mathis et al., 2008), on the presence of tics (Jaisoorya et al., 2008), on gender (Labad et al., 2008; Torresan et al., 2009), on symptom dimensions (Mataix-Cols et al., 2005; Ferrão et al., 2006; Leckman et al., 2010), and on treatment response (Ferrão et al., 2006; Fontenelle et al., 2006; Shavitt et al., 2006a; Raffin et al., 2009; Braga et al., 2010). Subtyping OCD on the basis of psychopathology could serve several purposes, perhaps allowing a more precise determination of the pathogenesis of OCD symptoms, a more accurate projection of future outcomes, and more efficacious treatments (Lochner and Stein, 2003; Miguel et al., 2005, 2008).

A novel approach to studying the psychopathology of OCD is based on evaluating the phenomena that precede and/or accompany the repetitive behaviors. In individuals with OCD, repetitive behaviors and compulsions are classically defined as being produced in response to an obsession. However, a substantial number of patients report

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repetitive behaviors that are preceded not by obsessions but by uncomfortable, distressing subjective experiences known as "sensory phenomena," a term that encompasses a variety of subjective experiences. Such experiences have previously been referred to as "premonitory urges", "sensory tics," "just-right perceptions," "sensory experiences," "feelings of incompleteness," and "not just-right phenomena." These sensory phenomena were initially described in Tourette syndrome but have also been associated with OCD (Leckman et al., 1994-95; Prado et al., 2008). Some authors have proposed that the presence and severity of sensory phenomena determine specific clinical characteristics of OCD (Miguel et al., 1997a, 2000), hypothesizing that such phenomena represent specific pathological pathways and therefore contribute to the identification of OCD subgroups that are more specific (Miguel et al., 1997a). The investigation of these different forms of subjective experiences in OCD patients is important for various reasons. Like obsessions, such phenomena are disturbing and uncomfortable and can lead the patient to perform repetitive behaviors (compulsions), which cause considerable suffering (Cohen and Leckman, 1992). In addition, greater recognition of these subjective experiences can increase patient ability to suppress symptoms (Cohen and Leckman, 1992). Furthermore, pharmacological treatment and behavioral therapy can alter such subjective experiences (Leckman et al., 1992). Moreover, it is possible that the presence of subjective experiences is a predictor of response to such treatments (Miguel et al., 2000; Summerfeldt, 2004; Shavitt et al., 2006a; Katerberg et al., 2010).

The principal aim of this study was to investigate the frequency, severity, and age at onset of the different types of sensory phenomena described in the literature. A secondary objective was to compare OCD patients with and without sensory phenomena, in terms of clinical characteristics. On the basis of the findings reported in previous studies, we predicted that the frequency of sensory phenomena would be high in the OCD patients and that, as a group, those patients would have the following characteristics: a higher proportion of males; an earlier age of OCD onset; a higher prevalence of the symmetry/ordering/arranging dimension; a higher prevalence of tics, Tourette syndrome, skin picking, and trichotillomania; a stronger association with a family history of tics; and greater tic severity. This work is timely considering that the DSM-V task force has discussed whether the word "urge" (one of the described types of sensory phenomena) should replace the word "impulse" as a definition of obsession (Leckman et al., 2010).

2. Methods

2.1. Subjects

The dataset of the Brazilian Research Consortium on Obsessive-Compulsive Spectrum Disorders (BRC-OCSD) study comprises information on 1,001 consecutive OCD outpatients interviewed between August 2003 and August 2008 at seven university hospitals in six different Brazilian cities. Only patients with OCD, as defined in the DSM-IV, were included in the study. The diagnosis of OCD was confirmed by an OCD expert using the Structured Clinical Interview for DSM-IV Axis I disorders: clinical version (SCID-CV), as previously described (First et al., 1997). The exclusion criteria comprised having a diagnosis of schizophrenia and being unable to fill out the necessary forms. A total of 46 patients were excluded for the following reasons: meeting the DSM-IV diagnostic criteria for schizophrenia ($n=7$); being unable to understand the instructions or provide informed consent ($n=1$); and declining to participate, because of the long duration of the interviews ($n=38$).

The study was approved by the research ethics committees of all seven participating universities. After being given a thorough description of the study procedures and an assurance that their decision to participate in the project would not interfere with their access to treatment, all participants (including children and adolescents) gave their written informed consent. A complete description of the BRC-OCSD objectives, methodology, and data collection procedures can be found elsewhere (Miguel et al., 2008).

2.2. Clinical assessment

All interviews were conducted by experienced clinicians (psychiatrists or psychologists) with expertise in the evaluation and treatment of patients with OCD. A standardized set of diagnostic instruments was employed, including the SCID-CV (First et al., 1997); additional modules for tic and impulse control disorders (First, 2004); and the attention deficit hyperactivity disorder and separation anxiety disorder sections of the Kiddie Schedule for Affective Disorders and Schizophrenia (Kaufman et al., 1997). In addition, natural history was assessed with the Yale Obsessive Compulsive Disorder Natural History Questionnaire (Leckman et al., 2002, unpublished manuscript, translated into Portuguese by Rosário et al.). We also employed instruments aimed at evaluating the severity of obsessive-compulsive and associated symptoms, including the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman et al., 1989), the Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS; Rosario-Campos et al., 2006), the Yale Global Tic Severity Scale (YGTSS; Leckman et al., 1989), the Beck Depression Inventory (BDI; Beck et al., 1961), the Beck Anxiety Inventory (BAI; Beck et al., 1988), the Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998), and the University of São Paulo Sensory Phenomena Scale (USP-SPS; Rosario et al., 2009).

The USP-SPS is a semi-structured scale designed to investigate the presence and severity of different types of sensory phenomena occurring before or during the performance of repetitive behaviors. The USP-SPS is divided into two parts: a checklist and a severity scale.

The USP-SPS checklist is composed of items assessing the (past and present) occurrence of different types of sensory phenomena, encompassing all previous descriptions of sensory phenomena in the literature. If such symptoms are reported, patients are also asked to provide their age at the onset of the sensory phenomena. Various subtypes of sensory phenomena preceding or occurring in conjunction with repetitive behaviors were evaluated, such as: physical (tactile or muscle-joint) sensations that include uncomfortable sensations localized in a specific region of the body (skin, muscles, or joints); "just right" perceptions triggered by tactile, visual, or auditory input, creating a desire for things to feel just right (a need to touch objects or people until it feels just right), to look just right (a need for objects to look a certain way, e.g., perfectly symmetrical), or to sound just right (a need for a person's voice or an audio recording to sound just right or have just the right pitch); "just right" perceptions triggered by internal feelings of incompleteness, provoking a perception of inner discomfort ("not just right" feeling) that makes the patient do certain things until feeling relieved or until getting the "just right" feeling; "energy release" sensations, defined as generalized inner tension or energy that builds up and needs to be released by making a movement or engaging in an activity; and an "urge only" phenomenon, which features no sensations or feelings—just an urge to perform a repetitive behavior. Subjects experiencing sensory phenomena often report a transitory sense of relief after the repetitive behaviors have been performed.

The USP-SPS severity scale measures the severity of the sensory phenomena on three 6-point anchored ordinal scales that focus on the frequency of the sensory phenomena (0 to 5), the amount of distress they cause (0 to 5), and the degree to which they interfere with patient functioning (0 to 5). The total score (ranging from 0 to 15) is obtained by combining these scores. Scores are obtained for current severity and worst-ever severity (severity at the time when the sensory phenomena were at their worst), as described by Rosario et al. (2009).

Inter-rater agreement was 96% for the SCID-CV, DY-BOCS, and USP-SPS. The USP-SPS has been shown to have excellent inter-rater reliability (Rosario et al., 2009). Interviewer training is described elsewhere (Miguel et al., 2008).

2.3. Statistical analysis

We analyzed the frequencies and distribution of selected variables for the sample as a whole. Results are expressed as mean ± standard deviation (S.D.), number (%), or median (range). For the differences between groups or features, we used Yates' or Pearson's chi-square test for categorical (dichotomous) variables. To compare means between the groups, Student's *t*-test or the Mann–Whitney *U*-test was used, depending on the distribution of data (normality assessed by the Kolmogorov–Smirnov test). For variables that achieved a value of $p \leq 0.10$ in the univariate analysis, we performed two forward stepwise logistic regression analyses: one for categorical variables and one for continuous variables. The level of statistical significance was set at 5%. All statistical analyses were performed with the Statistical Package for the Social Sciences, version 15.0 (SPSS Inc., Chicago, IL, USA).

3. Results

3.1. Description of sensory phenomena

Of the 1001 OCD patients evaluated, 651 (65.0%) reported at least one subtype of sensory phenomena preceding and/or accompanying repetitive behaviors and were collectively designated the OCD plus sensory phenomena (OCD + SP) group, whereas the remaining patients were collectively designated the OCD without sensory phenomena (OCD-noSP) group.

In the sample as a whole, "just-right" perceptions triggered by tactile, visual, or auditory input were observed in 519 patients (51.8%), physical sensations (specifically tactile and musculoskeletal sensations)