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A qualititative study of neurological soft signs in obsessive compulsive disorder and effect of comorbid psychotic spectrum disorders and familiality on its expression in Indian population

Dr. Sonia Malhotra, M.B.B.S.*, Dr. Pankaj B. Borade, M.B.B.S., Dr. Pradeep Sharma, M.D., Dr.Yogesh Satija, M.D., Dr. Gunjan, M.D.

Department of Psychiatry, S.M.S. Medical College, Jaipur, India

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ABSTRACT

Introduction: Obsessive Compulsive Disorder (OCD) is one of the most common psychiatric disorders, with lifetime prevalence of 2%–3% and is known to lie on a spectrum continuous with Schizophrenia and other affective psychosis. Neurological Soft Signs (NSS) have been reported to be higher in both Schizophrenia and affective psychosis, like bipolar disorder, and their first degree relatives but in OCD, the results have been inconsistent. It remains unclear if NSS occur at even higher rates in individuals who have a co-morbidity for OCD and either schizophrenia or bipolar disorder, as it might be expected if a broader neurodevelopmental hit underlies the pathophysiology of both OCD and these disorders.
Aims and objectives: To assess and compare NSS in patients of OCD, OCD with Psychotic spectrum disorders (OCD-PSD), first degree relatives of OCD (FDR of OCD) and healthy controls.
Methodology: 90 subjects each were recruited in four groups- OCD, OCD-PSD, FDR of OCD and healthy controls, as per the pre-defined inclusion and exclusion criteria for each group. Diagnosis was made as per ICD-10 criteria and Cambridge Neurological Inventory, Part-2 was applied.
Results and conclusion: This study found statistically significant difference between the severity of NSS among these groups. There was also a significant difference in presence of NSS in OCD with PSD group and OCD group. A greater abnormality of NSS in FDR of OCD compared to healthy controls was found. This difference in proportions and severity of NSS between groups points towards an underlying common neurobiological and etiopathological underpinning between OCD with and without comorbid PSDs and their first degree relatives.

1. Introduction

Neurological Soft Signs are mild motor, sensory or integrative deviations detected by clinical neurological examination, found in the absence of features of a fixed or transient neurological lesion or disorder, and assumed not to localise the site of a putative central nervous system lesion (Rao et al., 2008; Shagass et al., 1984). They do not signify localized brain dysfunction and probably constitute a marker of high risk for a variety of cognitive and psychiatric problems (Breslau et al., 1999; Rao et al., 2008; Shagass et al., 1984). Typically they are classified into signs relating to: primitive reflexes (snout reflex; grasp reflex; palmomental reflex), motor co-ordination and sequencing of complex motor tasks (finger-nose test; finger-thumb tapping; finger-thumb opposition; dysdiadochokinesia; fist-edge-palm test; oseretsky test), sensorimotor integration (extinction; finger agnosia; stereognosia; agraphesthesia; left-right disorientation), and disinhibition (go- no go test).

Neurological soft signs (NSS) associated with mental disorders are significant insofar as they implicate a central nervous system factor which may be relevant to aetiology or prognosis. NSS have been described in several psychiatric disorders such as Schizophrenia (Chan et al., 2010; Yaryura-Tobias et al., 1995), Obsessive Compulsive Disorder (Peralta et al., 2011), Bipolar Disorder (Nicolini et al., 2009; Whitty et al., 2009), Substance misuse (Dervaux et al., 2010; Keenan et al., 1997), Antisocial Personality Disorder (Lindberg et al., 2004) and Post-Traumatic Stress Disorder (Crino et al., 2005).

Obsessive Compulsive Disorder (OCD) is a highly debilitating condition and one of the most common psychiatric disorders, with lifetime prevalence of 2%–3% (Crino et al., 2005). It is characterized by recurrent intrusive thoughts (obsessions) or impulsive,

* Correspondence to: Room no.3, NMHP Trainees Hostel, Psychiatric Centre, Janta Colony, Jaipur, 302004 Rajasthan, India.
E-mail address: Docsoniamalhotra@gmail.com (D. S. Malhotra).

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repetitive, irresistible and often ritualized behaviours (compulsions), which serve to prevent anxiety and distress or to neutralize the obsessions (Jaafari et al., 2011). There has been a growing interest in the organic (neurological) basis of OCD. Neuroimaging and neurosurgical studies of OCD point to abnormalities in Cortical-Striatal-Thalamic circuits. The inhibitory failures in OCD patients are consistent with lateral Orbitofrontal dysfunction. These dysfunctions manifest as NSS (Poyurovsky et al., 2007).

In OCD, a number of studies have explored NSS but the results have been relatively inconsistent. Some studies found a higher prevalence of NSS in OCD patients than in healthy controls (Hollander et al., 1990; Hymas et al., 1991; Mataix-Cols et al., 2003; Sevincok et al., 2006), including impaired motor coordination (Bolton et al., 1998; Hollander et al., 1990; Hymas et al., 1991; Mataix-Cols et al., 2003), involuntary movements (Bihari et al., 1991; Hollander et al., 1990), sensory integration abnormalities (Bolton et al., 1998; Mataix-Cols et al., 2003; Sevincok et al., 2006) and presence of primitive reflexes (Bolton et al., 1998). However, other studies did not find any differences between OCD patients and controls in either total NSS scores (Jaafari et al., 2011; Stein et al., 1994), or in specific NSS subdomains such as motor coordination (Guz and Aygun 2004; Jaafari et al., 2011; Poyurovsky et al., 2007; Sevincok et al., 2006), sensory integration (Hollander et al., 1990; Sevincok et al., 2006; Stein et al., 1994), involuntary movements (Stein et al., 1994) or primitive reflexes (Mataix-Cols et al., 2003).

In this study, Psychotic spectrum disorders (PSD) include Schizophrenia, Schizoaffective disorders, Bipolar Affective Disorders, and Psychosis Not Otherwise Specified (Petrakis, 2006). Interestingly, supporting the notion that schizophrenia lies with the other psychoses along a continuum of vulnerability, higher NSS rates have been reported also in psychoses of the affective spectrum, such as bipolar disorder (Dazzan et al., 2008). OCD and Schizophrenia are disorders of neurodevelopmental origin, and are highly co-morbid (Eisen et al., 1997) with some overlap in symptomatology (Yaryura-Tobias et al., 1995). Studies conducted over the past three decades estimate that 7.8%–46% of people with Schizophrenia have concomitant obsessive-compulsive (OC) symptoms (Eisen et al., 1997; Fenton and McGlasham 1986; Insel and Akiskal 1986; Kruger et al., 2000) and evidence to suggest their neurodevelopmental origin comes from findings of increased rates of NSS in both OCD and Schizophrenia. The rate of comorbidity between OCD and bipolarity is more than 10% (Chen and Dilsaver, 1995). It remains unclear if NSS occur at even higher rates in individuals who have a co-morbidity for OCD and either schizophrenia or bipolar disorder, as it might be expected if a broader neurodevelopmental hit underlies the pathophysiology of both OCD and these disorders (Peng et al., 2012).

Interestingly, the origin of NSS seems to be, at least in part, genetic. This relationship has been addressed in recent years in research on endophenotypes in neuropsychiatric disorders in general and specifically in OCD (Chamberlain et al., 2005; Menzies et al., 2007; Rao et al., 2008). Unfortunately, there are not many studies that have specifically examined the prevalence of NSS in unaffected first-degree relatives (FDR) of patients with OCD, except two studies that showed a higher prevalence of NSS in unaffected first degree relatives of OCD patients compared to healthy controls (Kader et al., 2013; Peng et al., 2012).

NSS have been widely studied in OCD but not many studies highlight the status of NSS in OCD with comorbid psychotic spectrum disorders and also in unaffected first degree relatives of OCD. There is a dearth of Indian studies in this field and hence, a need for studying the effect of psychosis and familiality on expression of NSS in Indian population stimulated the concept of undertaking this study.

2. Methodology

The main **AIM** of this study was to assess and compare NSS in patients of OCD, OCD with Psychotic spectrum disorders, first degree relatives of OCD and healthy controls.

A hospital based, comparative type of observational study at the outpatient wing of Department of Psychiatry, SMS Medical College, Jaipur, was carried out. 90 subjects each were recruited in four groups- OCD, OCD with psychotic spectrum disorder (OCD-PSD), first degree relatives of OCD (FDR of OCD) and healthy controls, as per the pre-defined inclusion and exclusion criteria for each group.

Ethical consideration: Study was approved by research review board & ethical committee of the institution. An informed consent was obtained from the subjects prior to participation in the study.

2.1. Selection criteria for cases

2.1.1. Inclusion criteria

1. Age 18–45 years, either sex.
2. Meeting the ICD-10 criteria for OCD and Psychotic spectrum disorders (Schizophrenia, Bipolar disorder, Psychosis Not Otherwise Specified).
3. Literate enough to understand and perform the questionnaires.
4. Willing to give written consent and participate in the study.

2.1.2. Exclusion criteria

1. A severe disorder either in terms of behavior, communication or language that will make the interview almost impossible.
2. History of significant substance abuse, in last 3 months, except nicotine (ICD-10).
3. History of electroconvulsive therapy in the previous six months.
4. History of neurological disorder/significant head injury.
5. Mental retardation.
6. Any h/o chronic medical illness.

2.2. Selection criteria for first degree relatives and controls

2.2.1. Inclusion criteria

1. Age range 18–45 years, Either sex.
2. Literate enough to understand consent form & questionnaires.
3. Willing to give written consent and participate in the study.
4. FOR FIRST DEGREE RELATIVES- father, mother, brother, sister, son and daughter of the subject diagnosed with OCD.

2.2.2. Exclusion criteria

1. Any unstable, significant, chronic or untreated medical illness with special emphasis on neurological disorders.
2. History of significant head injury.
3. Past history of any psychiatric illness.
4. Mental retardation.
5. Current drug abuse or dependency problem (ICD-10).
6. Family history of psychiatric illness (ONLY FOR CONTROLS).

2.3. Instruments of study

2.3.1. Sociodemographic profile

This semistructured performa included name, age, sex, father's/husband's name, address, marital status, education, occupation, type of family and monthly income.