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Motor abnormalities in first-episode psychosis patients and long-term psychosocial functioning

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ABSTRACT

Motor abnormalities (MAs) are highly prevalent in patients with first-episode psychosis both before any exposure and after treatment with antipsychotic drugs. However, the extent to which these abnormalities have predictive value for long-term psychosocial functioning is unknown.

One hundred antipsychotic-naïve first-episode psychosis (FEP) patients underwent extensive motor evaluation including catatonic, parkinsonism, dyskinesia, akathisia and neurological soft signs. Patients were assessed at naïve state and 6 months later. Patients were followed-up in their naturalistic treatment and settings and their psychosocial functioning was assessed at 6-month, 1 year, 5 year and 10 years from the FEP by collecting all available information.

A set of linear mixed models were built to account for the repeated longitudinal assessment of psychosocial functioning during the follow-up regarding to the five domains of MAs (catatonic, parkinsonism, akathisia, dyskinesia and neurologic soft-signs) at index episode at antipsychotic naïve state and after 6 months of FEP. Basic epidemiological variables, schizophrenia diagnosis and average of chlorpromazine equivalent doses of antipsychotic drugs were included as covariates.

Catatonic signs and dyskinesia at drug-naïve state were significantly associated with poor long-term psychosocial functioning. Moreover, higher scores on parkinsonism, akathisia, neurological soft signs and catatonic signs at 6-month of FEP but not dyskinesia showed significant associations with poor long-term psychosocial functioning.

Our results added empirical evidence to motor abnormalities as core manifestations of psychotic illness before and after antipsychotic treatment with high predictive value for poor long-term psychosocial functioning in FEP patients.

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1. Introduction

Schizophrenia and related psychoses are severe mental disorders with a large proportion of non-recovered cases (Jääskeläinen et al., 2013) and huge elevated mortality compared to their corresponding general population (Schoenbaum et al., 2017). Intervention from the early states of the illness is now a good pathway to achieve better outcomes (Randall et al., 2015), and recovery is now understood from a wider approach than before by acknowledging a differentiation between clinical and functional remissions (Harvey et al., 2007; Leung et al., 2008) and between functional capacity and real world functioning

(Green et al., 2000; Bowie et al., 2006; Patterson and Mausbach, 2010; Sánchez-Torres et al., 2016). The difference between competence (what a person is able to do) and performance (what they actually do) is very relevant to evaluate the determinants of everyday functioning in schizophrenia patients. The former is referred to as functional capacity, while the latter is known as real-world functioning (Bowie et al., 2006).

Different groups of variables, such as premorbid, familial, demographic and clinical variables have consistently demonstrated predictive value for long-term psychosocial impairment in follow-up studies of schizophrenia and related psychosis (Strauss and Carpenter, 1974, 1977). Poor premorbid adjustment and low intellectual quotient, male gender, unemployment, an early onset and long duration of untreated illness or long length of current episode, severe negative symptoms and cognitive impairment, among others, were related to a poor

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outcome in schizophrenia patients (Bland, 1982; Harrison et al., 2001; Haro et al., 2008; Schennach-Wolff et al., 2009). And regarding FEP patients, low intellectual background and poor social and academic premorbid adjustment seem to be related to cognitive impairment and to a lower premorbid intellectual reserve (Cuesta et al., 2014). In addition, a schizophrenia or schizoaffective diagnosis, negative symptoms and early age at onset were predictive factors of symptom remission, functioning and recovery, 10 years after diagnosis in OPUS trial (Austin et al., 2013) and other studies (Amminger et al., 2011; Verma et al., 2012). However, the extent to which motor examination might be predictors of long-term psychosocial functioning (PF) is unknown.

Motor abnormalities (MAs) of severe mental diseases have been traditionally neglected in both clinical practice and research (Peralta and Cuesta, 2017, Schizophr. Bulletin in press). A set of heterogeneous groups of symptoms and signs integrate the MAs that can be classified into three different domains, namely catatonic, extrapyramidal (parkinsonism, dyskinesia and akathisia), and neurological soft signs (NSS). MAs have been demonstrated to be already present long before the beginning of illness, show strong associations with severity of negative symptomatology and cognitive impairment and are related to poor outcomes in schizophrenia patients (Bowie and Harvey, 2005; Peralta and Cuesta, 2017).

In addition, the different domains of MAs convey not only diagnostic problems in new versions of classifications of psychiatric disorders but also therapeutic ones (Francis et al., 2010). Indeed, catatonic symptoms may have better response to benzodiazepines and electroconvulsive therapy (ECT) than to antipsychotic drugs, which may even increase the risk of neuroleptic malignant syndrome (Francis et al., 2010). On the other side, catatonic symptoms have an excellent response to benzodiazepines and even ECT (Sienaert et al., 2014). Besides, the value of other non-catatonic MAs in terms of diagnostic and therapeutic issues remains understudied (Peralta and Cuesta, 2017).

The aim of this study was to examine the association between motor domains at the first-episode of psychosis (FEP) and the long-term outcome in psychosocial functioning, and particularly whether motor assessment in FEP patients both before starting antipsychotic medication and after 6-months of treatment was predictive of time-varying measures of functional outcomes in capacity or real-world functioning from 6-month to 10 years of follow-up.

2. Methods

100 consecutive patients with first-episode psychosis (FEP) not previously exposed to antipsychotic drugs were included in the study. The sample and assessment procedures used were described in detail elsewhere (Cuesta et al., 2009). Diagnoses included were schizophrenia or other non-purely affective psychotic disorders (DSM-IV-TR criteria). Patients were between 16 and 65 years old and did not assess adolescent and young adult population.

Exclusion criteria were evidence of antecedents of serious medical or neurologic disease, head injury, intellectual disability or drug dependence. The study was approved by the Clinical Research Ethical Committee of our hospital and all patients provided written informed consent to participate in the study.

Admissions of patients of index episode took place between 2003 and 2007 year. The Comprehensive Assessment of Symptoms and History interview (CASH) (Andreasen et al., 1992) was used in psychopathological and diagnoses assessment both at index episode and the long-term follow-up. Final diagnoses were reached by consensus between the two senior psychiatrists (MJC and VP). Age at onset was estimated by consensus using information by the patient and interview with a first-degree relative by means of the Symptom Onset in Schizophrenia (SOS) inventory (Perkins et al., 2000).

A comprehensive motor battery included the assessment of catatonic signs by means of the Modified Rogers Scale (MRS) (Rogers, 1985); parkinsonism with the Simpson-Angus Scale (SAS) (Simpson and

Angus, 1970); akathisia with the Barnes Akathisia Rating Scale (BARS) (Barnes, 1989); dyskinesia with the Abnormal Involuntary Movement Scale (AIMS) (Guy, 1976); and neurological soft signs (NSS) with The Neurological Evaluation Scale (NES) (Buchanan and Heinrichs, 1989). Motor assessments were undertaken by two psychiatrists (EGJ and MSC) at baseline before any exposure to antipsychotic drugs (naïve state), and at 1- and 6-month follow-up of FEP. For the purposes of this study we only analyzed the total global scores of these 5 scales at baseline and at 6-month of follow-up.

Patients were followed-up in their natural treatment setting by their community psychiatrists through our public network of mental health centers. Psychosocial functioning (PF) through the 10-year follow-up was carried out by collecting all available information including direct patients examinations, family member and complementary sources of information from clinical records. To account for homogeneity in assessments, we divided the 10-year follow-up into four time-periods starting from the date of the FEP to assess PF (baseline to 6 months, 6 months to 1 year, 2 to 5 years, and 6 to 10 years). We also averaged the level of psychosocial functioning scores from all sources of information in each time period. The length of the follow-up was set at 10 years to cover a minimal common time of assessment for all admissions in the study.

Psychosocial functioning of functional capacity was assessed by means of the Functioning Assessment Short Test (FAST) scale and the Short Disability Assessment Schedule (DAS-S). FAST scale is a brief instrument validated in psychosis populations that comprises 24 items and 6 specific areas of functioning: autonomy, occupational functioning, cognitive functioning, financial issues, interpersonal relationships, and leisure time (Rosa et al., 2007). FAST items are rated using a 4-point scale, from 0 (no difficulty) to 3 (severe difficulty). Moreover, the DAS-S is a semi-structured interview derived from the DAS (WHO, 1998) and it has been validated in Spanish in patients with schizophrenia (Mas-Expósito et al., 2012). The DAS-S is an instrument for clinicians' assessment and rating of difficulties in maintaining personal care, in performing occupational tasks and in functioning in relation to the family and the broader social context due to mental disorders. It is based on a 6-point scale for each of these specific areas of functioning of the patient, from 0 (no disability at any time) to 5 (the patient is severely disabled all of the time). Rating instructions in assessing the disability should take into account the severity or intensity of the dysfunction as well as its duration (Janca et al., 1996). The higher the score, the more serious the difficulties are, so DAS-S and FAST are actually measuring disability. Real-world functioning was evaluated by means of the Global Assessment of Functioning (GAF) of the DSM-III-R.

Psychosocial functioning during the follow-up was scored by the psychiatrists who first evaluated patients during the index episode (EGJ and MSC) and consensus scores were reached whenever in doubtful cases. Besides, we choose to score the GAF the average level of functioning during the period scoring instead of the lowest or highest level of functioning (Aas, 2011).

We considered enough and reliable information if patients have active records in the Navarra Health System (NaHS) with information from direct interviews of patients and relatives about functioning in the naturalistic follow-up of patients. Navarra is a middle size region of Spain with an area of 10,421 km² and a population of 637,000. The Navarra population has a high degree of stability in residence non-affected by migration effects. The NaHS provides universal coverage of primary and specialized care with little penetration of private practice. Moreover, NaHS has an electronic register system collecting health interventions from primary care to tertiary level, including information from all intervenient professionals (general practitioners and specialists, nurses, social workers, and other professionals).

To introduce homogeneity in the assessments we established four time-periods (baseline to 6 month, 6 month to 1 year, 2 to 5 years, and 6 to 10 years) to be assessed for psychosocial functioning starting in each case from the first-episode of psychosis.

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