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A pilot study of impulsivity and compulsivity in pathological gambling

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Abstract

We examined the relationship between gambling severity, impulsivity and obsessionality/compulsivity in 38 pathological gamblers, representing the complete Minnesota sample of a randomized, placebo-controlled clinical trial of paroxetine for the treatment of pathological gambling (PG), using Pearson correlations and linear regression models at baseline and treatment endpoint. At baseline, Pathological Gambling Modification of the Yale–Brown Obsessive–Compulsive Scale (PG-YBOCS) scores correlated significantly with those of the Eysenck Impulsiveness Questionnaire (EIQ) Impulsiveness subscale and Padua Inventory (PI) factors I and IV (corresponding to impaired control over mental and motor activities, respectively). None of the associations between PI factors and the PG-YBOCS were significant after adjusting for Impulsiveness scores. There were no differences in changes in the PG-YBOCS between the paroxetine and placebo group. Changes in PG-YBOCS scores after treatment correlated with changes in Impulsiveness scores. These changes appeared independent of paroxetine treatment. The results suggest that, although PG exhibits features of both obsessionality/compulsivity and impulsivity and elements of both decrease with treatment, impulsivity predominates and changes in gambling severity are most associated with changes in impulsivity.

Keywords: Pathological gambling; Impulsivity; Compulsivity; Impulse control disorder; Behavior addiction

1. Introduction

Impulsivity transcends multiple psychiatric disorders (Moeller et al., 2001) and is thought to be central to impulse control disorders such as pathological gambling (PG) (Blaszczynski et al., 1997; Petry and Casarella, 1999; Petry, 2001a; Potenza et al., 2001). The relationship between impulsivity and obsessionality/compulsivity is relatively poorly understood, particularly as related to specific psychiatric disorders and their treatments. Multiple studies have reported that pathological gamblers score higher than healthy volunteers on measures of impulsivity (Blaszczynski et al., 1986; Blanco et al., 1996), and one

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report observed pathological gamblers scoring higher than social gamblers on obsessionality/compulsivity (Blaszczynski, 1999). Although pharmacological approaches to PG have been based on the postulate that the studied medications target features of impulsivity or compulsivity, such hypotheses have not been formally tested. A more precise knowledge of the clinical features targeted by these medications may help improve our understanding of the neurobiology of pathological gambling and guide future treatment research.

Rationales for the study of serotonin reuptake inhibitors (SSRIs) in the treatment of PG have been based on their efficacy in treating obsessive–compulsive disorder and/or the relationship between serotonin and impulsivity (Grant et al., 2003a). SSRIs are considered first-line treatments for obsessive–compulsive disorder. At the same time, a number of studies have documented the relationship between abnormalities in the serotonergic system and different disorders related to impulsivity. Prior to the conduct of this study, several clinical trials had suggested that SSRIs, including paroxetine (Hollander et al., 1998; Blanco et al., 2002; Kim et al., 2002) might be useful in the treatment of PG, although they had also documented high placebo response rates.

We sought to examine the extent to which PG symptom severity correlated with obsessionality/compulsivity and impulsivity at baseline, and whether changes in PG symptomatology during treatment with paroxetine were associated with changes in obsessionality/compulsivity and impulsivity. We hypothesized that: 1) consistent with its diagnostic classification as an impulse control disorder, PG severity would correlate with impulsivity rather than with obsessionality/compulsivity; 2) decreases in gambling behavior would correlate with decreases in impulsivity; and 3) patients treated with paroxetine would have greater decreases in impulsivity and gambling behavior than those treated with placebo.

2. Methods

2.1. Subjects

This study was conducted as an ancillary study in one of the sites (Minnesota) participating in a larger, multicenter, placebo-controlled study of paroxetine for pathological gambling (Grant et al., 2003b). Subjects from the other sites were not administered the impulsivity and compulsivity measures described below and, therefore, could not be included in this study. The University of Minnesota's institutional review board approved the study. The study was carried out in accordance with Good Clinical Practice Guidelines and the Declaration of Helskinki. All participants provided written informed consent for this study. Subjects were 18 years and older with a primary DSM-IV diagnosis of PG and no current axis I comorbidity (except possibly nicotine dependence) or lifetime history of bipolar or psychotic disorders. Patients in the study were not allowed to receive any other interventions (including Gamblers Anonymous) during the study. After a 1-week placebo run-in, eligible patients were randomized using a computer-generated table of random numbers to 16 weeks of placebo ($n=20$) or paroxetine ($n=18$) up to 60 mg/day.

2.2. Assessments

Structured Clinical Interviews for DSM-IV (SCID) (First et al., 1995) and Pathological Gambling (SCI-PG) (Grant et al., 2004; Pallanti et al., 2005) were used for diagnostic evaluation. At study entry and termination (week 16 or earlier), patients were administered the Yale–Brown Obsessive–Compulsive Scale modified for PG (PG-YBOCS), the Padua Inventory (PI), and the Eysenck Impulsiveness Questionnaire (EIQ).

The PG-YBOCS, a valid and reliable measure of PG symptomatology, is a 10-item, 5-point severity, clinician-administered scale (Hollander et al., 1998). The first five items of the PG-YBOCS comprise the gambling urge/thought subscale (time occupied with urges/thoughts; interference and distress due to urges/thoughts; resistance against and control over urges/thoughts), and items 6–10 comprise the gambling behavior subscale (time spent gambling and amount of gambling; interference and distress due to gambling; ability to resist and control gambling behavior). Each item is rated from 0 to 4, with higher scores reflecting greater severity, and the total score thus ranges from 0 to 40. It has shown excellent inter-rater reliability, and convergent validity with the Clinical Global Impression Scale and the South Oaks Gambling Screen (Stinchfield, 2003).

The PI is a reliable and valid 60-item, 5-point severity self-report inventory that measures obsessions and compulsions and contains four factors: 1) impaired control over mental activities, which assesses ruminations and exaggerated doubts; 2) fear of contamination; 3) checking; and 4) impaired control over motor activities which measures urges and worries related to motor behavior, such as violent impulses (Sanavio, 1988). It has been used in clinical samples of individuals with PG (Blaszczynski, 1999), obsessive–compulsive disorder (van Balkom et al., 1998), polysubstance abusers (Sumnall et al., 2004), and in general population