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Original article

Risk factors for cocaine-induced psychosis in cocaine-dependent patients

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ABSTRACT

Cocaine consumption can induce transient psychotic symptoms, expressed as paranoia or hallucinations. Cocaine induced psychosis (CIP) is common but not developed in all cases. This is the first European study on the relationship between CIP, consumption pattern variables and personality disorders. We evaluated 173 cocaine-dependent patients over 18 years; mostly males, whose average age was 33.6 years (SD = 7.8). Patients attending an outpatient addictions department were enrolled in the study and subsequently systematically evaluated using SCID I and SCID II interviews for comorbid disorders, a clinical interview for psychotic symptoms and EuropASI for severity of addiction. A high proportion of cocaine dependent patients reported psychotic symptoms under the influence of cocaine (53.8%), the most frequently reported being paranoid beliefs and suspiciousness (43.9%). A logistic regression analysis was performed, finding that a model consisting of amount of cocaine consumption, presence of an antisocial personality disorder and cannabis dependence history had 66.2% sensitivity 75.8% specificity predicting the presence of CIP. In our conclusions, we discuss the relevance of evaluating CIP in all cocaine dependent-patients, and particularly in those fulfilling the clinical profile derived from our results. These findings could be useful for a clinical approach to the risks of psychotic states in cocaine-dependent patients.

1. Introduction

Cocaine consumption and demands for treatment have increased in Europe in recent years. On average, in Europe 14 million Europeans have used it at least once in their life, (4.1% of adults aged 15–64 years) and four million Europeans have used the drug in the last year (1.3%), being Spain the leading European country in the consumption of cocaine [10]. The US National Comorbidity Survey found that 3.8% of the general population has a substance use disorder, and 65% of drug dependent individuals develop at least one mental disorder throughout their lifetime [22,23]. Chronic consumption of cocaine can induce transient psychotic symptoms, expressed as paranoia or hallucinations. The term cocaine induced psychosis (CIP) has been used to describe this syndrome. These symptoms disappear typically with abstinence [39,37,7,42,28].

Associating these symptoms with a DSM-IV diagnostic category is a complex process. CIP symptoms can appear with cocaine intoxication and they can also be present in psychotic disorders induced by cocaine. These diagnostic criteria are controversial and have been the subject of some criticism [29]. Assessment of psychotic symptoms induced or exacerbated by cocaine in patients with chronic psychotic disorders such as schizophrenia or bipolar disorder is difficult because such patients often lack insight into their psychotic symptoms, whether or not they are cocaine-related. In contrast, cocaine users without chronic psychotic disorders, but who report CIP, almost always have retrospective insight into the distorted nature of their experiences during cocaine intoxication, even though they often lack such insight while intoxicated.

Besides the risks associated with CIP symptoms, some studies have observed that drug dependent-individuals with cocaine induced paranoia are at higher risk of developing a psychotic disorder [39,25].

CIP prevalence is not exactly known; different studies have reported prevalences between 48% and 88% [40,21,43]. The wide range of prevalences found are probably due to the variability and bias in the samples studied, the different study designs, instruments used for assessment, and administration routes used.

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As for the clinical factors that moderate the appearance of CIP, several factors have been found that increase the possibility of a CIP. Different researches agree with the idea that the amount of cocaine consumed both in laboratory and clinical studies [28,14,33,18,19] and early-onset of cocaine use [7,21,14] are positively related to CIP. It has also been reported that the early-onset of cocaine dependence, or in vulnerable periods of brain development, may lead to increase the severity of CIP [14,3]. However, it has been found that the number of years of cocaine use does not correlate with cocaine-induced psychosis [36]. It has also been established that different routes of administration from the nasal airway like smoking [33] or intravenous use [19] may increase the risk of CIP. Comorbidity with other substance use disorders, such as cannabis use seems to play a mediating role for developing psychotic symptoms. Tang et al. observed a statistically significant difference in the frequency of CIP in cocaine dependent individuals based on cannabis dependence, but this difference did not remain statistically significant after adjusting for age and sex [42]. Kalayasiri et al. recently found that adolescent-onset of cannabis use increases the risk of CIP in cocaine dependent individuals [21].

CIP can be linked to hostile behaviours and antisocial personality disorder (ASPD). A pattern in which the stimulants generate hostility through psychotic symptoms has been suggested. This contributes to a perception of the environment as a hostile and threatening place, as well as through increasing impulsivity, thus CIP can trigger hostile behaviours [42,27].

Although the assessment of traits and personality disorders during heavy drug use is complex and there is debate about its stability [35,8], comorbid Axis II disorders are especially prevalent in cocaine users. Several studies found prevalences of personality disorders ranging from 30 to 77% in inpatient or outpatient samples [25], being antisocial and borderline personality disorders (BPD), the most prevalent [15]. Kranzler et al. compared the frequency of CIP in patients with and without personality disorders but did not find significant differences [25]. However, it is possible that antisocial personality traits are related with CIP. Recently, Tang identified that cocaine-dependent patients who experienced CIP tend to present a comorbid ASPD more frequently [42]. Despite this, the relationship between personality disorders and psychotic symptoms induced by cocaine, are clearly not sufficiently analysed.

This study examined the relationship between CIP and substance consumption variables and personality disorders, and attempted to identify risk factors for CIP. Although other studies have been published on this topic, this is the first to study both substance consumption and personality disorders simultaneously in a European clinical sample.

2. Subjects and Methods

2.1. Procedure

We performed a cross-sectional, observational study. The participants were patients of the Psychiatric Department of the Vall d'Hebron Hospital (Barcelona, Spain). Specifically, they were cocaine-dependent patients treated in a Substance Use Disorders Unit, who began treatment between January 2006 and December 2008. This study is part of a more extensive research on the comorbidity in cocaine dependence.

Inclusion criteria were: age over 18, cocaine dependence according to DSM-IV criteria, and signing the informed consent prior to participation. Exclusion criteria were: psychotic disorder or bipolar type I disorder, intoxication at baseline examination, severe somatic disease at baseline examination and low language proficiency. We excluded psychotic and bipolar patients in order to avoid the risk of not being able to distinguish primary and secondary symptomatology. However, it is known that CIP can be measured in psychotic patients [41]. The research was approved by the Ethics Committee of the Vall d'Hebron Hospital. Patients did not receive any financial compensation for taking part in this study.

The evaluation process consisted of three interview sessions conducted by trained psychiatrists and psychologists. The psychiatrists performed the evaluation of substance use disorders, CIP and variables related with cocaine consumption; this interview corresponded to the first medical visit. Psychologists measured severity of substance use disorder and personality disorders in the second and third interviews.

2.2. Participants

From a total of 238 patients who contacted our unit, 173 finally took part in the study. The flow chart of the study is presented in Fig. 1.

2.3. Data collection

2.3.1. Cocaine Induced Psychosis (CIP)

Trained psychiatrists systematically conducted a structured interview in which the conclusions from the sensoperceptive examinations were summarized. The patients were asked about the psychotic symptoms they had experienced under the influence of cocaine throughout their life. This examination included four questions about paranoid beliefs, auditory, visual and kinetic hallucinations. The questions were: (1) Have you ever heard, or thought you heard, something that wasn't really there? Did it happen while you were under the effects of cocaine? (2) Have you ever seen, or thought you saw something, that wasn't actually there? Did it happen under the effects of cocaine? (3) Have you ever felt anything unusual on your body or on your skin? Did it happen while you were under the effects of cocaine? (4) Have you believed that people were spying on you, or that someone was plotting against you, or trying to hurt you? Did it happen while you were under the effects of cocaine? Patients were considered CIP positive by the psychiatrist if they were marked positively in any of the above questions.

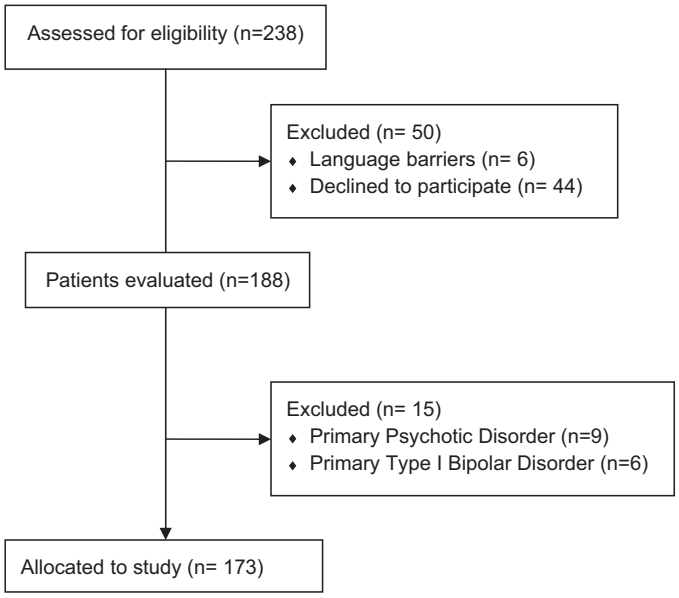

Fig. 1. Study Flow Chart.