

Review

Childhood neglect and parental care perception in cocaine addicts: Relation with psychiatric symptoms and biological correlates

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Abstract

Childhood neglect and poor child–parent relationships have been reported to increase substance use disorders susceptibility. Stressful environmental factors, including emotional neglect, could affect individual personality traits and mental health, possibly inducing stable changes in hypothalamic–pituitary–adrenal (HPA) axis and brain mono-amine function, in turn involved in addictive behavior vulnerability. Therefore, we decided to investigate homovanillic (HVA) and prolactin (PRL) plasma levels, as expression of possible changes in dopamine function, ACTH and cortisol plasma levels, as measures of HPA axis function, and concomitant psychiatric symptoms profile in abstinent cocaine addicts, in relationship to their childhood history of neglect and poor parental care perception.

Methods: Fifty abstinent cocaine dependent patients, and 44 normal controls, matched for age and sex, were submitted to a detailed psychiatric assessment (DSM IV criteria). All patients and controls completed the Symptoms Check List-90 (SCL-90) and the Buss Durkee Hostility Inventory (BDHI), to evaluate psychiatric symptoms frequency and aggressiveness levels. The Childhood Experience of Care and Abuse-Questionnaire (CECA-Q) and Parental Bonding Instrument (PBI) have been used to retrospectively investigate parent–child relationships. Blood samples were collected to determine HVA, PRL, ACTH and cortisol basal plasma levels.

Results: Cocaine addicted individuals in general showed significantly lower HVA, and higher PRL, ACTH and cortisol basal levels respect to controls. In particular, neuroendocrine changes characterized cocaine addicts with childhood history of neglect and low perception of parental care. Obsessive–compulsive, depression and aggressiveness symptoms have been found related to poor parenting, inversely associated to HVA levels and directly associated to PRL, ACTH and cortisol levels.

Conclusions: These findings suggest the possibility that childhood experience of neglect and poor parent–child attachment may partially contribute to a complex neurobiological derangement including HPA axis and dopamine system dysfunctions, playing a crucial role in addictive and affective disorders susceptibility.

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Keywords: Psychiatric symptoms; Obsessive–compulsive; Depression; Aggressiveness; Homovanillic (HVA); Prolactin (PRL); Adrenocorticotrophic hormone (ACTH); Cortisol; Neglect; Childhood; Parental care; Cocaine; Addiction

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1. Introduction

A variety of evidence demonstrated that attachment between parents and child plays a crucial role in healthy development and, in contrast, impaired parental bonding seems to be a major risk factor for mental diseases, substance abuse and dependence later in life (Canetti et al., 1997; Newcomb and Felix-Ortiz, 1992; Petratis et al., 1995; Brook et al., 1989). Negative early childhood experiences of abuse and neglect have been found also involved in the susceptibility for obesity and cardiovascular diseases, and other behavioral/health risk conditions (McEwen, 2000).

Accordingly, all types of childhood maltreatment, including emotional abuse, have been reported as serious risk factors for substance use during adolescence (Moran et al., 2004) and emotional neglect was found associated with a greater severity of substance abuse, particularly among female subjects (Hyman et al., 2006). The individuals affected by substance use disorders have been previously reported to perceive high maternal and paternal control and low maternal care, a pattern characteristic of an “affectionless control” rearing style (Torresani et al., 2000), that was also evidenced in the history of pathological gamblers (Grant and Kim, 2002), depressed subjects (Narita et al., 2000), alcoholics (Joyce et al., 1994), young offenders (Chambers et al., 2000) and, in general, psychiatric disorders (Scinto et al., 1999a, b). At a retrospective evaluation, disturbed parenting was frequently found in the history of narcotic addicts (Bernardi et al., 1989) with the perception of parents as cold, indifferent, controlling and intrusive (Schweitzer and Lawton, 1989). To this purpose, our previous psychometric investigation, in a large sample of high school students, showed an inverse correlation between parental care and aggressiveness/social maladaptation scores, in turn related with illicit drugs experimenting (Gerra et al., 2004a, b).

Similarly, the lack of adequate parental care was very recently identified as a consistent predictor of adult affective disorders (Lancaster et al., 2007) and a prospective investigation showed that child abuse and neglect were associated with an increased risk for major depression (Widom et al., 2007), again suggesting that the disruption in early rearing conditions may significantly contribute to mood problems, negative affects

and behavioral under-control, as possible risk factors for substance abuse susceptibility.

As previously evidenced by Roy (2002) in cocaine addicts, adverse childhood experiences, and particularly poor child–parent relationships, appear to negatively influence personality development, possibly contributing to a stable dysfunction of brain monoamines, with an inverse correlation between emotional neglect during infancy and CSF metabolites of serotonin and dopamine in the adult. Nevertheless, hypothalamic–pituitary–adrenal axis and autonomic nervous system hyper-reactivity, observed in the adults affected by affective and addictive disorders (Gold et al., 1986; Holsboer et al., 1986; Krishnan et al., 1993; Holsboer et al., 1995; Sher, 2006), could be a persistent consequence of childhood abuse and neglect, that may have contributed to the diathesis for adulthood psychopathological conditions (Arborelius et al., 1999; Heim et al., 2000).

A variety of clinical studies have evaluated the long-term effects of early developmental stress, such as child abuse and neglect or parental loss. Severe early stress and maltreatment have been found to induce a neurobiological cascade of events that have the potential to alter brain development and to increase the risk of developing depression, symptoms of attention-deficit/hyperactivity, borderline personality disorder, dissociative identity disorder and substance abuse (Teicher et al., 2002). In particular, compared to levels in subjects who had experienced neither loss nor a separation, parental loss by death was found associated with higher cortisol throughout the day, suggesting that affective deprivation provoked by bereavement during childhood may have lasting effects on the HPA axis, even in the absence of psychopathology (Nicolson, 2004). Accordingly, infants who experienced frequent emotional withdrawal by their mothers (either as a result of maternal depression, or mother’s strategic use of withdrawal as a control tactic) showed elevated baseline levels of cortisol, with sensitization to later stress, cognitive deficits, and social–emotional problems (Bugental et al., 2003).

Taking into account these evidence, a possible neurobiological derangement, involving both dopaminergic function and hypothalamic–pituitary–adrenal (HPA) axis function may be hypothesized to underlie substance dependence and depression vulnerability in humans (Oswald et al., 2005; Duval et al.,

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