Childhood Trauma and Physiological Stress Responses in Bipolar Affective Patients

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ABSTRACT

We have administered the Childhood Trauma Questionnaire (CTQ) to twenty one Bipolar Patients (BP) and twenty four Control participants. There are similar tendencies, though not statistically significant, for the Physical Abuse subscale. Post Hoc analysis reveal that BP type I have a significantly higher Emotional Abuse score than BP type II and Control participants, and higher Sexual Abuse and Physical Abuse scores than Control subjects. We observed a significant negative correlation between the amplitude of the startle responses to almost all of conditions with the CTQ Physical Abuse score only. These results suggest that childhood trauma is over-represented in Bipolar patients and could influence their physiological responses to a stressful stimulus.

INTRODUCTION

Stress responsivity of the CNS can be assessed by an acoustic startle protocol, where sudden loud noises activate an archaic acoustic reflex in the brainstem, causing an eye blink, the amplitude of this blink can be measured by electromyography. This reflex is potentiated by states of emotional distress, such as fear, via modulation by forebrain structures including the amygdala. The reflex also habituates to weaker pre-pulses (Pre-Pulse Inhibition effect). Studies have shown that the acoustic startle response is more pronounced in affective disorders, as well as in individuals with early childhood abuse, but no studies have examined possible interactions of these two phenomena.

OBJECTIVES

To determine whether individuals with Bipolar Affective Disorder have higher levels of childhood trauma than controls, and whether this difference may contribute to their greater responses to an acoustic startle.

PROCEDURE

Twenty one SCID diagnosed bipolar patients (13 Bipolar I and 8 Bipolar II patients) and 24 healthy participants were tested in this protocol. All participants were screened for street drugs. Patients did not differ from Controls in terms of mean age or gender distribution. On the day of testing, the eye blinking component of the auditory startle reflex was measured using electromyography of the orbicularis oculi muscle. This experiment contains three blocs:

- In the first bloc, a sequence of thirty six 106db pulses occurred randomly, some of which are preceded by a pre-pulse starting 60 ms before the 106db pulse. The first six trials are rejected.
- In the second bloc, a sequence of seventy six 106db pulses are given. Each of these pulses is paired with a right or left cue. The cue is red if the light is red. Of course, no electrical shock is given, but this particular directive allows us to study the impact on the startle response.
- The third bloc is a repetition of the first bloc in order to assess habituation.

Subjects were also administered on the first day of testing the Childhood Trauma Questionnaire (CTQ), which is a self-report instrument that measures levels of trauma experienced in childhood according to five subtypes: Physical Abuse; Emotional Abuse; Sexual Abuse; Physical Neglect; Emotional Neglect.

RESULTS

Bipolar I patients in our sample reported significantly higher levels of childhood trauma than Controls (p<.01), and a nearly significant trend towards higher levels of trauma than Bipolar II patients (p=.06).

CONCLUSIONS

This is the first study, to our knowledge, to demonstrate a difference in levels of reported childhood abuse between patients with Bipolar I Disorder and Bipolar II Disorder or Controls. Both on overall CTQ scores, and on the Emotional Abuse and Physical Abuse subscales. Bipolar I patients reported higher levels of abuse than Bipolar II patients or Controls. This raises interesting and important questions about the possible etiology and development of Bipolar Disorder in adult, and whether experiencing trauma early in life may cause individuals who are predisposed to a Bipolar illness to manifest more severe forms of the condition in adulthood.

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We also found that levels of reported childhood Physical Abuse influenced the acoustic startle response of patients with Bipolar I or II Disorder. This adds to evidence already in the literature that experiences of early childhood trauma has direct and lasting effects on the brain's responsivity of the CNS, and also raised the question as to whether this may account for a possible mechanism whereby early life trauma affects the expression of psychiatric illnesses such as Bipolar Disorder.

REFERENCES
