The aim of our study is to determine if patients with bipolar affective disorder have an increased stress response than normal control participants. We have measured startle responses in a bipolar disorder group compared to normal volunteers. We have measured physiological responses to 106 db pulses, pre pulse inhibition, and end of trial startle responses in a fear potentiated visual stimulus. In addition, we have correlated blood cortisol at entry (8.00 AM) with several psychiatric scales (HAM-D, MADRS, YMRS). Our results demonstrate that bipolar patients have a higher blood cortisol baseline than control participants and that the blood cortisol concentration is positively correlated with end of trial startle responses and with HAMD and MADRS scores. Bipolar patients have significantly higher responses than control participants in several conditions including pre pulse inhibition and fear-potentiated startle responses. These results are interpreted in relation with the LHPA hyperactivity observed in some animals model of depression.

INTRODUCTION

Anxiety and excessive fear is a common comorbid disorder in the affective bipolar spectrum population. Sudden intense stimuli, like loud sounds, activate an acoustical startle reflex which implicates several nuclei located in the brainstem. The reflex is a short latency contraction of facial musculature and in, particular, an eye blink. It is possible to observe a decrease of the psychophysiological response by pre-pulse inhibition (Pre Pulse Inhibition effect). Moreover, it is well established that the amplitude of the reflex is modulated by several factors, such as emotional context and could be notably increased by fear (Fear Potentiated effect). On the contrary to the basic circuitry located in the brainstem, the startle modulation implicates higher brain structure in the forebrain such as the amygdala.

OBJECTIVES

The purpose of this study is to determine whether patients with a bipolar affective disorder have a different acoustic startle response than normal control volunteers. We also have correlated the startle responses with emotional states as measured with several psychiatric scales (HAM-D, MADRS, YMRS) and the activity of the LHPA axis at the study entry (8.00 AM) as measured with the baseline plasma cortisol level.

PROCEDURE

20 SCID diagnosed bipolar patients and 24 control participants have been tested in this protocol. All participants have been screened for street drugs. One day before the experiment a plasma sample of cortisol was drawn and several psychiatric scales were administered (HAM-D, MADRS, YMRS). 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 consists of three blocs:

- In the first bloc, a sequence of thirty six 106db pulse occurred with a pre pulse inhibition of 80 db occurring 80 ms before the 106db pulse. The first bloc is 300 ms long.
- In the second bloc, a sequence of seventy six 106 db pulse occurred. Each 106db pulse was followed by a 80 db pre pulse inhibition for the Fear condition. The participants are informed before the experiment that an electrical shock could occur when the light is lit up. Of course, no electrical shock is given but this particular directive allows us to study the impact of the stress on the startle response.

- The third bloc is a repetition of the first bloc in order to assess habituation.

DEMOGRAPHY

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REFERENCES