DOPIAMINE RELEASE DURING PSYCHOLOGICAL STRESS IN EUTHYMIC BIPOLAR I DISORDER: A POSITRON EMISSION TOMOGRAPHY STUDY WITH [11C]-RACLOPRIDE

Research Objectives:
Few studies have attempted to provide direct evidence for the role of dopamine release in response to stress in Bipolar Disorder (BD). The purpose of this study was to investigate whether euthymic BD patients have a greater dopamine release during stress using Positron Emission Tomography (PET) scanning with the radiotracer [11C] raclopride, in response to a stress task known as the Montreal Imaging Stress Test (MIST).

Methods:
10 euthymic DSM-V BD patients and 10 healthy controls underwent [11C]raclopride PET scan on a “stress” and a “no stress” condition separated by at least 24 hours. Participants received an injection of the radiotracer over 1 minute followed by PET scan for 60 minutes. Participants were assessed for mood symptom severity at baseline, and before and after each scan. The reduction in [11C]raclopride binding in stress condition compared with non-stress rest condition for each subject provided an estimate of dopamine release due to stress.

Results:
The mean age of the participants in the study was 35 (±12) years. Six (30%) of the participants were females. Salivary cortisol increased during stress for all participants. The scores on Montgomery-Åsberg Depression Rating Scale increased during stress condition for BD patients. There was no effect of condition or group on [11C]raclopride binding in any of the brain regions of interest, except for ventral striatum, where stress led to dopamine release for all participants.

Conclusion:
The magnitude of dopamine release during a stress task does not seem to vary significantly between euthymic bipolar patients and healthy controls.