MOOD DISORDERS

[Abstract:0168] ***Mood disorders***

Effects of cortisol and brain-derived neurotropic factor on the serotonin transporter in the midbrain of bipolar I disorder

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Objective: Studies have demonstrated an association between cortisol levels and availability of the serotonin transporter (SERT) in healthy subjects and in those with major depressive disorder (MDD). We evaluated if this association could be observed in bipolar disorder (BD). In addition, a second biomarker, brain-derived neurotropic factor (BDNF), was considered to test the influence of the BDNF level on SERT availability in BD.
Methods: Twenty-eight subjects with euthymic BD type I as well as 28 sex- and age-matched healthy controls (HCs) were recruited. 123I-ADAM with single-photon emission computed tomography (SPECT) was applied for measurement of SERT availability in the brain. Ten milliliters of venous blood were taken when the subject underwent SPECT for measuring plasma levels of cortisol and BDNF. The simple ratio method was used for calculation of SERT availability.
Results: A significant decrease in SERT availability in BD compared with HCs was noted, whereas plasma levels of cortisol and BDNF did not show a significant difference. Linear regression analyses showed that changes in SERT availability could be explained only by plasma levels of cortisol but not by BDNF levels and their interaction in HCs. Notably, this phenomenon was not observed in BD patients. These data suggest that the association of cortisol level and SERT availability seen in HCs appears to be disrupted in BD patients.
Conclusion: Our data demonstrate not only a disruption in the relationship between cortisol level and SERT availability in BD, but also imply a different role of cortisol regulation of the SERT between MDD and BD.
Keywords: bipolar disorder, serotonin transporter, cortisol

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Relationship of cytokines with brain serotonin transporter in bipolar I disorder

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Objective: The aim of this study was to investigate the interaction of cytokines and brain serotonin transporter (SERT) in bipolar disorder (BD).
Methods: Twenty-eight BD type I patients and 28 age- and sex-matched healthy controls (HCs) were recruited. Single photon emission computed tomography with the radiotracer 123I-ADAM was used for the SERT image. Regions of interest included the midbrain, thalamus, putamen and caudate. Seven cytokines included tumor necrosis factor-α (TNF-α), interferon-γ (IFN-γ), interleukin-1α (IL-1α), IL-1β, IL-4, IL-6 and IL-10 were measured using an enzyme-linked immune-sorbent assay. Four ratios included IFN-γ/IL-4, IFN-γ/IL-10, IL-1β/IL-6, and IL-1β/IL-10 was compared and correlated with the SERT availability between BD and HCs.
Results: The SERT availability in the midbrain and caudate was significantly lower in BD than in HCs. IL-1β was significantly lower, whereas IL-10 was significantly higher in BD than those in HCs. The ratio of IL-1β/IL-10 was significantly lower in BD compared with HCs. Pearson's correlation showed that IL-1α was significantly correlated with the SERT availability in the midbrain and caudate, TNF-α was significantly correlated with the SERT availability in the thalamus in HCs. However, these correlations cannot be found in BD. A stepwise