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MEETING ABSTRACT Open Access

Plasma Brain-Derived-Neurotrophic Factor levels and cognitive function in euthymic bipolar type I patients

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Background

Brain-derived neurotrophic factor (BDNF) is an important contributor to the pathophysiology of bipolar disorder (BD), and abnormalities in the BDNF-signaling system may be implicated in the cognitive decline observed in BD patients. We aimed to investigate serum BDNF levels in BD patients, and its relation with neurocognitive function.

Materials and methods

We measured serum BDNF levels using an enzyme-linked immunosorbent assay method in 65 euthymic type I BD patients and 50 healthy controls, and administered a neuropsychological test battery to assess attention and mental control, perceptual-motor skills, executive functions, verbal fluency and abstraction, visuo-spatial attention, and memory.

Results

We found no significant differences regarding serum BDNF levels in BD patients and healthy controls. We found significant positive associations between serum BDNF levels and illness duration, and manic and depressive episodes in female BD patients only. Serum BDNF levels were lower in patients medicated with antipsychotics and/or lithium, whereas patients on valproate and/or antidepressants showed higher serum BDNF levels. Patients performed significantly worse on 11 out of 16 neurocognitive tests as compared to controls. We found a significant positive association between serum BDNF levels and a test of verbal fluency in both BD patients and controls.

Conclusions

Present results support the hypothesis that BDNF normalizes with mood stabilization and pharmacological treatment. Our findings in young and physically healthy patients, with short illness duration and few mood episodes may explain the lack of association between serum BDNF levels and neurocognitive performance, even though cognitive performance in patients was overall significantly worse as compared to healthy controls.

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