P01-230

ACTIVATION OF SEROTONIN METABOLISM AND BDNF CHANGES IN DEPRESSED PATIENTS WITH MULTIPLE SCLEROSIS DURING INTERFERON-BETA THERAPY

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Background: Indoleamine-2, 3-dioxygenase is responsible for tryptophan catabolism; IFN-β is a treatment for multiple sclerosis (MS) and it has been associated with depression. IDO activation might play a role in IFN-β induction of depressive symptoms. Depressive symptoms associated with MS illness and IFN-β treatment have been treated with pharmacological and non-pharmacological intervention.

Aims: Evaluation of the kynurenine pathway, IDO activation and neurotoxic agents, serum BDNF in MS patients during IFN-β intervention.

Methods: 14 study subjects, aged 18-64 years with major depressive disorder and MS treated with IFN-β, before and after pharmacologic and non-pharmacologic intervention, and 34 age matched healthy controls were enrolled at the University of Rome "La Sapienza" and at the at the University of Antwerp. Depressed participants were randomized to sertraline-treatment or interpersonal psychodynamic psychotherapy.

Results: There were significant improvements in both depression and anxiety symptoms with medication and psychotherapy groups, although the effect with sertraline was more robust. Sertraline treatment was associated with a decline in serotonin. In the psychotherapy group, a significant increase in 3-hydroxyanthranilic acid (HAA) was observed after 4 months treatment (p= .04) with a significant decrease in tryptophan levels at 6 weeks (p= .02) and a trend towards a significant decrease in BDNF after 6 wks (p=0.06), neither of which were seen in the medication condition.
Discussion: The increase in HAA among the psychotherapy-treated
patients raises the possibility of a neurodegenerative challenge for patients
with multiple sclerosis during treatment with IFN-β which appeared to be prevented with pharmacological treatment.

https://doi.org/10.1016/S0924-9338(09)70851-X Published online by Cambridge University Press