Brain-Derived Neurotrophic Factor (BDNF) Levels in Relation to Depression in Egyptian Diabetic Women: A Pilot Study

Moushira Zaki a, Hala El-Bassyouni b, Mona Abd Elmotaleb A. Hussein c, Hend M. Tawfeek d, Mina Wassef Girgiss e, Magdy N Ashour f and Eman R. Youness f

a Biological Anthropology Department, National Research Centre, Giza, Egypt.

b Clinical Genetics Department, National Research Centre, Cairo, Egypt.

c Internal Medicine National Institute of Diabetes and Endocrinology, Cairo, Egypt.

d Internal Medicine Faculty of Medicine, Al-Azhar University- Girls.

e Medical Department, Medical Research Division, National Research Centre, Giza, Egypt.

f Medical Biochemistry Department, Medical Research Division, National Research Centre, Giza, Egypt

Abstract:

Background:

Brain-derived neurotrophic factor (BDNF) is a crucial moderator of neuronal plasticity in adults, a potential association between BDNF and depression has been reported. Besides BDNF plays a role in glucose and energy metabolism.

Methods:

This work included 180 women (25-55 years old). Ninety diabetic patients with the clinical diagnosis of depression and 90 were normal controls. Plasma BDNF was evaluated using ELISA. The Zung Self-Rating Depression Scale (SDS) consisting of 20 objects with a Likert- type scale after each was used. HbA1c were measured in each patient using a clinical auto-analyzer.

Results:

BDNF levels in serum decreased significantly in diabetic depressed women compared to controls. Moreover, BDNF levels were inversely proportional to age, BMI, HbAc1 and LDL.

Conclusion:

The study suggests that age, BMI, HbAc1 have a definite impact on the circulating levels of BDNF in peripheral blood. The outcomes delineate that BDNF could participate in glucose impairment and lipid metabolism in diabetic patients.

Keywords:

Brain-Derived Neurotrophic Factor (BDNF); BMI; Depression; HbAc1; lipid profile; type 2 diabetes mellitus