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Association of Blood Lead Levels and Serum Zinc Levels with Serum Brain Derived Neurotrophic Factor in Schizophrenia Patients of North Indian Population †

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Abstract: Schizophrenia is an oxidative stress-induced neurodegenerative disorder with 1% prevalence. Zinc (Zn) is an important component of SOD an antioxidant enzyme, and Lead (Pb) affects the release of neurotransmitters. Due to the significant effects of these metals on neurotransmitters and antioxidant defense, the levels of Zn and Pb were compared with BDNF, which plays a critical role in the pathophysiology of schizophrenia. 100 individuals participated, out of which 50 were diagnosed with schizophrenia using PANSS score, and 50 were taken as controls using GHQ. Serum BDNF levels were estimated using ELISA. BLL and Serum Zn were estimated using AAS. The mean ± SD levels of BLL, Serum Zn and serum BDNF were 0.9 ± 0.5 µg/dl, 0.26 ± 0.18 µg/ml and 58.1 ± 12.5 ng/ml respectively in the patients and 0.9 ± 0.5 µg/dl, 0.26 ± 0.18 µg/ml and 74.6 ± 34.6 ng/ml respectively in controls. The differences in BLL, Serum Zn levels, and BDNF level among the study group were highly significant ($p < 0.05$). Pb and Zn levels were significantly raised in schizophrenic patients compared with controls. Serum BDNF is also associated with these Zn and Pb levels. Further investigations are required to know the underlying mechanism of these metals in schizophrenia.

Keywords: BDNF; schizophrenia; Zn; BLL.

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Conflicts of Interest

The authors declare no conflict of interest.