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Serum iron overload among psychiatric patients in the Kumasi Metropolis, Kumasi, Ghana

Peter Kojo Brenya

Kwame Nkrumah University of Science and Technology, Ghana

The pathogenesis of many diseases like Psychiatric disorders, cardiovascular diseases, diabetes and cancer has been associated with serum iron derangement. Iron is essential micronutrient and common trace element to human however, its electrochemistry poses exceptional health challenge thus its metabolism is controlled in a clever mechanism. The pathophysiology of iron metabolism in various psychiatric illnesses remain unclear, even though several studies have suggested a link between serum iron and some variables in psychiatric conditions. There is paucity of information about the association of iron overload and primary psychiatric illness, particularly as there exist controversial findings. Limited information on biochemical profile of iron metabolism among psychiatric patients is available in Ghana especially where iron overload has been suggested to be unrecognized cause of psychiatric morbidity. A total of 200 study participants comprising 75 treatment naive psychiatric patients, 75 those already on treatment and a 50-healthy control were recruited into the study using the International Classification of Diseases (ICD-10). 4 ml of blood sample was collected between the hours of (7:00 am and 9:00 am) after 12 hours overnight fasting. Iron indices assayed amount the three groups were- Serum Iron, UIBC, TIBC, Transferrin and percentage Transferrin Saturation (TS). High serum iron and TS and low UIBC, TIBC and Transferrin levels were present in treatment-naive patients' psychiatric patients compared to those already on treatment and the healthy controls ($p < 0.0001$). Treatment naive psychiatric patients demonstrated higher serum AST/ALT ratio and AST compared to controls ($p = 0.0004$) ($p = 0.0035$) than those already on treatment ($p = 0.2488$) ($p = 0.596$) respectively. Iron overload (Serum Iron and TS) and chronic liver dysfunction were significantly associated with treatment naive psychiatric patients compared to healthy controls and psychiatric patients already on treatment. Assessment of iron indices should be incorporated in the initial clinical evaluations of newly diagnosed psychiatric patients.

brenya.peter@yahoo.com