Role of blood catecholamine in cases with dysmetabololic iron overload syndrome (DIOS) in patients of Metabolic Syndrome

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Abstract

Background: Dysmetabolic iron overload syndrome (DIOS) is characterized by elevated ferritin and normal transferrin saturation level. Iron metabolism may be linked to the sympathetic overactivity. DIOS is seen in 15-20% of the metabolic syndrome cases.

Aim: This study aimed to test the hypothesis linking the increased baseline sympathetic drive to the hypertension seen in dysmetabololic iron overload syndrome in cases of metabolic syndrome.

Subjects: 64 hypertensive patients with metabolic syndrome diagnosed based on the criteria of National Cholesterol Education Program (NCEP) compared to 37 hypertensive controls without metabolic syndrome.

Methods: History and general examination including height, weight, BMI and waist circumference measurements were done for both cases and controls. Panel of assay (CRP, cholesterol, triglycerides, uric acid, glucose, creatinine, ALT and GGT. Iron, transferrin, ferritin, insulin and catecholamines (adrenaline, noradrenaline and dopamine) were measured for both groups. Transferrin saturation and HOMA-IR were calculated as well.

Results: 6 patients were found fulfilling criteria of DIOS represented 9.3% of metabolic syndrome patients. Demographically DIOS patients were shown to be statistically older when compared to non-DIOS patients (P
value = 0.026). BMI of DIOS patients (mean = 28.2, SD = 2.5) was found to be statistically lower than non DIOS patients (mean = 33.7, SD = 6.2) (P value = 0.033). 4 out of 6 DIOS cases were females. No significant difference was found between the cases presenting with DIOS versus the Non DIOScases as regard to assayed catecholamines (adrenaline P value = 0.4, noradrenaline p value = 0.68, dopamine = 0.516).

**Conclusion:** 9.3% of metabolic syndrome cases were diagnosed as dysmetabolic iron overload syndrome. Thus, iron profile and liver MRI should be done routinely in these cases for early diagnosis of liver cirrhosis and hepatocellular carcinomas. Further research on more mass population should be continued to assess the role of age, gender and BMI in the pathogenesis of DIOS.