Adipokines in Chronic Liver Diseases; Role in Pediatric Patients

Abstract: The adipose tissue, previously considered as a passive storage site for excessenergy,isnow recognized as a hormonally active system, producing numerous molecules, known as adipokines, which exert local, central, and peripheral actions. Few studies have yet explored the possible significance of leptin, resistin and adiponectin in the pathophysiology of liver disease in children. The main aim of this study is to determine circulating leptin, resistin andadiponectinlevelsandtocorrelatetheselevelswith anthropometricvariables and liver biochemicalprofileinchildrenwithchronicliverdiseases. Twenty nine chronic liver disease patients were enrolled in this study with age range from one to eighteen years old, from Pediatric Hepatology Clinic at Cairo University Pediatrics Hospital(CUPH).Also16ageandsex matched control subject were included. All patients were subjected to the following : Full and detailed history and clinical examination. The serum resistin and adiponectin concentrations were determined by an enzyme linked immunosorbent assay(ELISA) and leptin estimation using the Immunoradiometric assay (IRMA). Mean BMI of cases was significantly lower than controls ($p<0.05$).Cases had significantly higher mean ALT and AST levels than controls ($p < 0.05$, $p < 0.01$) respectively. Cases with CLD expressed a significantly lower levels of serum leptin (10.05 ± 3.51 ng/ml) and adiponectin(3.74±1.64 µg/ml) compared to the controls (16.64 ± 2.95 ng/ml) and (7.31 ± 0.57 ng/ml) respectively ($p< 0.01$). Resistin levels were significantly higher in cases (7.10 ± 2.36 ng/ml) than controls (4.11 ± 0.76 ng/ml) ($p< 0.01$). Cases with chronic viral hepatitis had a significantly lower serum leptin and adiponectin levels and significantly higher serum resistin levels than controls ($p <0.01$). Cirrhotics had a significantly lower serum leptin and adiponectin levels and significantly higher serum resistin levelst han controls($p<0.01$). A significant positive correlation ($p< 0.01$) was detected between serum levels of resistin and adiponectin. Our results suggest that in children with chronic liver disease whether due to hepatitis or cirrhosis, adipokines especially leptin, resistin and adiponectin are important biomarkers and their pathophysiological roles still require further investigation. Cases with CLD expressed significantly lower levels of serum leptin and adiponectin compared to the controls. Resistin levels were significantly higher in cases than controls. These findings might have an impact on future strategies for these patients.