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## Assessment of nutritional status in obese children with and without non-alcoholic fatty liver disease

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**Statement of the Problem:** Non-alcoholic fatty liver disease (NAFLD) has been reported recently as the most frequent liver disease among obese children and adolescents in industrialized countries. Therefore, nutritional assessment is important in detecting the NAFLD in obese children.

**Objective:** The objective of this study was to study the nutritional status of obese children with and without NAFLD.

**Methodology & Theoretical Orientation:** We studied 160 obese children of 5-18 years age divided in to two groups: Normal liver (n=54) and with NAFLD (n=106). Anthropometric, biochemical measurements and ultrasonography used to identify NAFLD in children. Z-score of body mass index (Z- BMI), mid arm circumference (MAC), waist circumference (WC) and triceps skinfold thickness (TSF) measured. Serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl-transferase (GGT) low-density lipoprotein (LDL)-cholesterol, high-density lipoprotein (HDL)-cholesterol, triglyceride, cholesterol, high sensitivity C-reactive protein (hs-CRP) and uric acid were measured. Their dietary intake was also taken.

**Findings:** NAFLD was detected in 66.2% of obese children. Mean Z-BMI, MAC, TSF, WC were significantly higher in NAFLD group as compared to normal liver group ( $p < 0.05$ ). Mean ALT, AST, GGT, HDL-cholesterol, triglyceride, hs-CRP, uric acid were also significantly higher in NAFLD group as compared to normal liver group ( $p < 0.05$ ). Daily, twice and thrice a week consumption of high fructose corn syrup in form of soft drinks (60.3% 23.5% and 16.2%) and fried chips (58.4%, 24.5% and 17.1%) ( $p < 0.001$ ) were more in NAFLD group than without NAFLD group (37%, 24.2% and 38.8%) ( $p = 0.348$ ) and (24.2%, 31.4% and 44.4%) ( $p = 0.179$ ).

**Conclusion:** Z-BMI, MAC, TSF, WC and ALT, AST, GGT, HDL-cholesterol, triglyceride, hs-CRP, uric acid were significantly higher in NAFLD and at least these parameters are recommended for screening in pediatric NAFLD. Calorie intake was more in these children but excess in NAFLD group. So, early lifestyle interventional approach should be adopted for the treatment of NAFLD that further leads to nonalcoholic steatohepatitis (NASH) and cirrhosis.

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