Analysis of the effect of excess weight and weight loss on serum aminotransferases: further defining clinical correlates.

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Both weight gain and weight loss may adversely affect liver function. The factors that influence which individuals will be affected most are not clear. Serum alanine aminotransferase (ALT) has been used as a surrogate marker for hepatic injury. A retrospective analysis of 2110 adults enrolled, from 1996-2008, in a year long Optifast 900®weight loss program was completed to assess the characteristics of patients who entered the program with variable ALT levels, whether or not initial ALT levels predicted a change in response to the program, and a subgroup analysis of individuals who doubled their ALT levels during the program. Individuals who entered the program with higher ALT levels were significantly different in gender (proportionally higher males) and presence of obstructive sleep apnea; higher baseline BMI and waist circumference; higher HOMA-IR, lower AST/ALT, lower platelets and higher APRI (AST Platelet Ratio Index). Mixed effect modelling using SAS, adjusted for baseline weight, demonstrated a significant difference between rates of weight loss between the three groups. Higher initial ALT levels predict a more rapid rate of weight loss. Subgroup analysis demonstrated that individuals who doubled their ALT levels during had lower baseline ALT; were more often female, younger, and with a higher BMI; with a history of treated hypertension and obstructive sleep apnea using CPAP; higher platelets, lower AST and lower APRI; higher fasting glucose but neither HOMA-IR or fasting insulin were significantly different. These differential clinical characteristics highlight the complexity of weight effect on liver function and help inform the pathophysiology.

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