Increased serum activity of liver aminotransferases in young patients with Turner Syndrome

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Objectives:
• According to some clinical studies, liver involvement seems to be frequent in TS patients with prevalence of liver test abnormalities from 20 to 80%.
• The hepatic histological changes reported in TS patients vary, including minimal abnormalities, steatosis, steatohepatitis, biliary involvement, nodular regenerative hyperplasia, and cirrhosis.
• The data regarding liver tests in children and adolescents with TS is lacking.

Methods:
• A cross-sectional review of liver function in 100 girls with TS (age range 4-16, the mean BMI SDS 0.63 [-1.86 - 6.78]); 56 receiving rhGH therapy (9 obese, 47 normal weight), and 44 receiving rhGH therapy and estrogen or estrogen/progesterone replacement therapy (HRT) (8 obese).
• A longitudinal study included 81 patients (mean follow-up period: 3-5 years).
• The activity of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) was measured.

Results:
• When compared to reference ranges, 34 % of patients demonstrated increased AST and ALT activity (32% without HRT, 36% on HRT), without a significant increase of the incidence (p>0.05) in the subsequent years.
• Ultrasound examination revealed liver steatosis in 11% patients without HRT and in 9% of patients with HRT. During the follow-up period, no patient developed serious liver disease. There was no significant correlation between AST and BMI SDS R=0.09;p>0.05, ALT and age (R=0.02,p>0.05), nor AST and age (R=-0.01,p>0.05).
• Although there was a significant correlation between ALT and BMI SDS (R=0.23,p<0.05), the relative risk of increased ALT and AST activity was not higher in obese (OR 0.2; 95%CI 0.1-0.36,p=0.38, and OR 0.16; 95%CI 0.08-0.3,p=0.1 respectively). HRT did not increase the risk of higher ALT and AST activity (OR 0.8; 95%CI 0.5-1.2, p=0.37, and OR 0.7; 95%CI 0.4-1.1,p=0.27 respectively).

Conclusions:
• Obesity and HRT do not increase the relative risk of higher ALT and AST activity.
• Estrogen supplementation may have a beneficial effect on liver function in patients with TS.

References:

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Growth and syndromes (to include Turner syndrome)