ANNALS of Hepatology

LETTER TO EDITOR

November-December, Vol. 11 No.6, 2012: 966

Elevated alanine aminotransferase levels are associated with impaired fasting glucose and type 2 diabetes in obese women

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Dear Editor:

Because elevation of serum alanine aminotransferase (ALT) levels plays an important role in developing of type 2 diabetes (T2D),[1] we evaluated whether the elevated ALT levels are associated with incident impaired fasting glucose (IFG) and T2D, in obese women.

Obese (body mass index [BMI] ≥ 30 kg/m^2) nonpregnant women aged 20 to 65 years were enrolled in a cross-sectional study. Alcohol consumption ≥ 20 g per day, smoking, positive markers of viral or autoimmune hepatitis, any kind of medical treatment, previous diagnosis of acute or chronic liver disease, renal failure, glomerulopathies, neoplasia, cardiovascular disease, and intake of contraceptives or hepatotoxic drugs, were exclusion criteria. Waist circumference and total body fat were matched criteria.

Elevated ALT levels were defined by serum ALT levels > 29 U/L.[1]

A total of 108 (35.6%) women with IFG and 97 (32.0%) diabetic women were compared with 98 (32.4%) obese control women without glucose disturbances.

Women with IFG (47.0 ± 30.2) and T2D (46.8 ± 26.1) exhibited higher ALT levels than women in the control group (30.9 ± 21.7, $p < 0.005$). Elevated ALT levels were identified in 11 (11.2%); 79 (73.1%), and 66 (68.0%) women in the control, IFG and T2D groups, respectively.

The age-and BMI-adjusted logistic regression analysis showed that elevated ALT levels are significantly associated with IFG (OR 1.8; CI95% 1.1-2.7) and T2D (OR 1.3; CI95% 1.1-3.1).

Our results show that, in obese women, elevated ALT levels are associated with IFG and T2D; supporting the statement that liver damage is an underlying factor related with glucose metabolic disturbances.

Previous studies have demonstrated that elevated ALT levels are a risk factor for T2D;[2,3] our study adds in this field that, in the obese women, elevation of ALT is also associated with IFG. These finding supports the hypothesis that liver injury plays an important role in the pathogenesis of T2D, suggesting that elevated ALT levels closely reflect not only the presence of non-alcoholic fatty liver disease but also a condition characterized by decrease of insulin sensitivity.

Because the vast majority of people who attend invitation for medical care are women, in this preliminary study, we didn't include men; so, further research is mandatory to verify our hypothesis.

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Manuscript received: June 14, 2012.
Manuscript accepted: June 26, 2012.