Reviewer’s report

Title: Association of Alanine Aminotransferase Levels (ALT) with the Hepatic Insulin Resistance Index (HIRI): a cross-sectional study.

Version: 1 Date: 22 May 2012

Reviewer: Elisabetta E Bugianesi

Reviewer’s report:

This cross-sectional study provides further information to the rising burden of knowledge on the relationship between liver and metabolic abnormalities. The authors enrolled 324 subjects attending the Endocrinology outpatient clinic with indications to perform an oral glucose tolerance test (OGTT) and assessed the relationship between indices of insulin resistance, particularly hepatic IR (by HIRI), and serum ALT levels. All individuals were divided into 5 groups according to the presence and degree of metabolic abnormalities (no/MetS/IFG/IGT/T2DM). The association between ALT and HIRI was not statistically significant in subjects without metabolic abnormalities, but in subjects with impaired glucose metabolism, or insulin resistance, ALT levels were an independent marker of hepatic insulin resistance measured with HIRI. The authors thus suggest that measurement of ALT might be helpful as an early marker of metabolic abnormalities.

This study is interesting although potentially biased by the population used, with a high prevalence of metabolic abnormalities, which may limit its applicability to the general population.

Major issues:

1. Exclusion criteria for subjects with suspected liver disease are not clearly described. Was alcohol intake taken into account and how? Which viral markers were determined?

2. Did the authors also measure AST and GGT levels? If not, why did they chose only one liver enzyme?

3. The correlation between ALT and hepatic IR is likely to be due to the presence of fatty liver. Do the author have any information about that or can they provide a surrogate measure of fatty liver (such as FLI-fatty liver index) to be compare with the other variables?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

'I declare that I have no competing interests'