Reviewer's report

Title: Association of adipocyte genes with ASP expression: a microarray analysis of subcutaneous and omental adipose tissue in morbidly obese subjects

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Reviewer: Martin Haluzik

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This is a very interesting study focused on the comparison of adipocyte gene expression assessed by microarray in morbidly obese subjects divided into two groups: subjects with low ASP and low triglyceride levels (LAT) and high ASP and high triglyceride levels (HAT).

The authors found the differences predominantly in s.c. adipose tissue depot (not in omental fat). Subjects from HAT group had increased expression of lipid trafficking genes for lipid storage, genes encoding adipocyte differentiation markers and proinflammatory genes while their oxidation related genes in s.c. fat were decreased.

Overall, the study is well conducted and the results are interesting although rather surprising in some respects such as no differences in omental adipose tissue between the groups. The major problem I have is the insufficient metabolic and anthropometric characterization of subjects which may have affected the data. For example: blood glucose levels were 6.24±1.97 in LAT v.s. 6.22±0.79 (expressed as means±SEM). I believe that this indicates that at least one or probably more subjects in each group were diabetic (meaning with fasting glucose above 7 mmol/l). Authors state that both groups had subjects with “very high” fasting glucose levels, but none of the subjects have been diagnosed as diabetic. From the SEM in LAT group it appears that there were more variations in the blood glucose levels than in HAT group meaning that there may have been more subjects with diabetic glucose levels and more subjects with normal glucose. Taken together having diabetic subjects in both groups could have markedly affected the outcome of the study. The authors should clearly state how many diabetic subjects were in each group (it would be nice to see individual fasting glucose data for each subject). They should also rephrase their statement on page 4, line 5 “subjects with “very high” fasting glucose levels, but none of the subjects have been diagnosed as diabetic”. Also, I would strongly question the statement of authors that none of the 11 obese subjects had metabolic syndrome unless they show triglyceride levels, waist circumference and blood pressure for all subjects were normal. I believe that clarifying these important points is crucial for the correct interpretation of the study results.

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