Reviewer's report

Title: Sweet taste sensitivity in pre-diabetics, diabetics and normoglycemic controls: a comparative cross sectional study.

Version: 2 Date: 7 July 2014

Reviewer: George Kyriazis

Reviewer's report:

This is an interesting cross sectional study addressing sweet taste sensitivity in pre-diabetic and diabetic populations using HbA1c levels for classification and two taste sensitivity tests (recognition of threshold and supra-threshold intensity). The authors address an important question regarding the association between sweet taste perception and diabetes development. Particularly, they investigate the taste thresholds in pre-diabetic populations hypothesizing that timely interventions may delay progression to diabetes. The authors confirmed previous findings showing sweet taste sensitivity differences in diabetics, but they did not observe any statistically significant differences in pre-diabetics. This is a well-written manuscript, but the authors have omitted important data analyses that limit data interpretation and, in some instances, do not justify the authors' conclusions.

Major revisions:

1. Classification of groups was performed using HbA1c levels. Data analysis should be performed using fasting plasma glucose concentrations (i.e. also ADA classification criteria). Although current taste differences may disappear between groups using the suggested analysis, it is important to acknowledge and discuss.

2. The authors suggest that, although recognition threshold in pre-diabetics was not statistically different, “…an increasing trend was observed” across the three groups. Also the authors conclude that their data suggest “…a gradual diminishing of sweet taste sensation which corresponds to a measured impairment of glycemic control”. Correlations between the two sensitivity tests and HbA1c levels (and plasma glucose) should be performed to justify the comment. Even if there is no correlation between the variables it is important to show graphically, acknowledge and discuss. If these analyses are not performed the authors should remove any comments regarding “…gradual diminishing of sweet taste and its relationship with impairments of glycemic control…” because their finding in current form do not support these claims.

Minor revisions:

1. The authors claim that “…blunted taste response …..leads to consumption of more sugar…” 92 and 213. No reference is cited for this claim.

2. Do the authors have any type of dietary records? What is the consumption of artificial sweeteners in these populations? If so, should be analyzed, included and discussed.
3. Pre-diabetic and diabetic patients are often accompanied by obesity. It seems that this study included “lean” diabetics (that are not T1DM) and thus may not be representative of a “typical” diabetic profile. Authors should acknowledge this and discuss.

4. It is indicated that medications affecting taste sensitivity were on exclusion criteria. This should be discussed along with any other confounding fact that may have altered findings? (the authors already mention levels of HbA1c).

**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.