Reviewer’s report

Title: Association of insulin, C-peptide and blood lipid patterns in patients with impaired glucose regulation

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Reviewer: Carlos Lorenzo

Reviewer's report:

1) Line 107: Diagnostic criteria.
HbA1c is currently used to diagnose IGR. Why the authors do not use HbA1c levels to diagnose diabetes and IGR.

2) Line 126: all the indexes were detected for all subjects at 30 min, 60 min, 120 min, and 180 min after taking orally 75 g of glucose. And later Line 142: the islet β cell function index (homeostasis model assessment of β cell function, HOMA-β) as 20 × fasting insulin/(fasting blood glucose - 3.5).
HOMA-β is a poor index of β-cell secretion. It seems to me that the authors could use a better index based on OGTT measures. A better IR index than HOMA-IR can be also calculated from OGTT measures.

3) Page 10, Line 36: The overall HbA1c serum concentration percentages in the IGR group were 6.33, which is less than the threshold of ≥6.5% for diabetes diagnosis proposed by the American Diabetes Association,…
The overall HbA1c is 6.33, but it may be some of these patients have diabetes because their A1c is higher than 6.5%

4) Page 11, Line 2: Numerous previous studies have reported that insulin resistance and dyslipidemia occur in combination or are interacting[12-15]. However, it is not entirely clear whether dyslipidemia leads to insulin resistance or its reverse, since some researchers believe that high triglycerides and low plasma HDL-C levels are consequences of insulin resistance[16]…
I agree with the authors that there are numerous studies linking IGR and diabetes to lipids. Therefore, I think this study adds very little to the current knowledge that links dyslipidemia to IGR and diabetes.

5) Page 11, Line 26: The present study showed that in an OGTT insulin and C-peptide serum concentrations were higher in the IGR than in the T2DM and NGT groups.
--It is already know that the secretory defect in diabetes is greater than that in IGR.
--In addition, IFG and IGT may differ in terms of insulin secretion. Several indices of insulin secretion could be investigated and these results may be of greater interest that those currently presented in the manuscript.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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