Author’s response to reviews

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

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Reviewer reports:
Fernando Bril (Reviewer 3): 1- Lack of Novelty: If, as suggested by the authors, the aim of the study was to detect ethnic differences in insulin sensitivity, a different approach should have been implemented with a better ethnic characterization of the patients. A comparison between different ethnicities within the same study would have been ideal if possible. Authors did not address the ethnic factor in the discussion. How do their results compare to other studies assessing these factors in Caucasians, Hispanics, African Americans?
Reply: Since our hospital is located in the Shanxi province, the vast majority of the patients are Han Chinese and a clinical comparison between different ethnicities like Caucasians, Hispanics, African Americans is not possible. However, we discussed the ethnical differences between blood lipids and insulin resistance more detailed in the discussion section. (Discussion section, line 9-16, page 11)
2- Grammar: Thank you for addressing this.

3- Lack of information on medications: thank you for adding this information. All patients with T2DM > 40 years should be taking a statin according to current guidelines. How do authors justify the lack of use of statins in their population? Is this a selected population of patients with T2DM? Due to the long half-life of long-acting insulins and some SU, what measures did the authors take to avoid any bias during the OGTT? When was insulin discontinued for the OGTT? What happened with patients with fasting plasma glucose levels over 250 before the OGTT? (the relationship between glucose and insulin is affected with hyperglycemia, and therefore any measurements of insulin resistance is incorrect at these levels).

Reply: We added to the Methods section: “Patients taking statins and fibrates were also excluded” and “Three days before the OGTT, insulin aspart 30, insulin detemir, insulin glargine, glimepiride and alogliptin were discontinued and medications were switched to an insulin pump containing insulin aspart and metformin or/and acarbose. Insulin administration was also discontinued at least 4 hours before the OGTT and no medication was taken before the OGTTs. All OGTTs were conducted only with patients, whose fasting blood glucose was less than 9 mmol/L.” (Method section, line 15, 20-25, page 5)

4- More information regarding patient recruitment should be provided: Thank you for addressing this.

5- Use of a glucose-lowering agent does not appear described in the manuscript as a criterium for diabetes. This answer was unclear
My point is that if a patient was recruited already taking glucose-lowering medication and his/her OGTT was completely normal, the diagnosis of T2DM was based on prior use of T2DM medication (he was diagnosed at some point in the past, obviously, but authors may not know what criteria was used).

Reply: We added this information into the diagnostic criteria section as: If a patient was recruited already taking glucose-lowering medication and his/her OGTT was completely normal, the diagnosis of T2DM was based on prior use of T2DM medication. (Method section, line 10-12, page 6)

6- No information is provided regarding the methodologies used to measure insulin and c-peptide: Thank you for adding this information.

7- We calculated the Matsuda indices and added the new data to Table 1 in the revised manuscript. Thank you for addressing this.