Reviewer’s report

Title: Plasma level of peroxiredoxin 3 in patients with polycystic ovarian syndrome

Version: 0 Date: 31 Dec 2018

Reviewer: Victor M. Victor

Reviewer’s report:

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The article by Liu et al was conducted to investigate the role of PRX3 in the pathogenesis of polycystic ovarian syndrome (PCOS) featured in insulin resistance. They examined the circulating PRX3 in PCOS patients and control subjects by enzyme linked immunosorbent assay. Levels of ROS and oxidized PRXs were detected in mouse islet cells treated with gradient glucose. They did not find significant difference of fasting plasma PRX3 between PCOS patients and controls. No association was noticed between fasting plasma PRX3 and fasting plasma glucose or insulin. However, the plasma level of PRX3 was increased at 2h and began to fall back at 3h of oral glucose tolerance test (OGTT). There was a one hour time lag of peak values between plasma PRX3 and insulin, and the plasma PRX3 at 2h was positively correlated with the insulin level at 1h of OGTT of PCOS patients. The level of ROS was significantly elevated at 1h and oxidized PRX3 was increased dramatically at 2h of 16.7mM glucose stimulation in mouse islet cells. They conclude that it seems that PRX3 does not show its antioxidant function under baseline conditions. Instead, PRX3 responds to oxidative stress induced by rapid release of insulin in patients with PCOS.

This article is simple and has some valuable data. I have the following comments:

- Endocrine and anthropometric parameters should be shown in the table.

- Discussion should be expanded as well as include new references such as: Induction of oxidative stress and human leukocyte/endothelial cell interactions in polycystic ovary syndrome patients with insulin resistance. Victor VM, Rocha M, Bañuls C, Alvarez A, de Pablo C, Sanchez-Serrano M, Gomez M, Hernandez-Mijares A. J Clin Endocrinol Metab. 2011 Oct;96(10):3115-22.

- The potential role of PRX as an antioxidant enzyme should be discussed because the authors have shown an increase in ROS at different times.

- Which is the contribution of PRX3 in comparison with other sources of ROS?
- Levels of mitochondrial ROS should be evaluated in order to know the mitochondria as a source of ROS.

- Why the authors have selected infertile women as controls? PCOS patients can be infertile or fertile depending on the medical status and treatment. If you include fertile controls, the results are different?

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.

No

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

No

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I am able to assess the statistics

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