Reviewer's report

Title: Metabolic Syndrome: Definitions and Controversies

Version: 1 Date: 21 January 2011

Reviewer: Altan Onat

Reviewer's report:

This review on metabolic syndrome (MetS), written by pediatricians, focuses more on the various definitions during the concept’s evolving and the controversies that have arisen. The latter part on pediatric MetS is concise and the conclusions seem appropriate but the major part on adult MetS contains following major issues to be addressed.

1. Whereas the essence of MetS needed to be described in greater detail along with the components’ role in conferring the risk for diabetes and cardiovascular disease, the various definitions, how they evolved and the resulting differences in the prevalence of and controversies around MetS seem to have been overemphasized.

2. Search for unified criteria applicable to all ethnicities is in vain and should not be stressed. As a consensus definition (listed in Table 1) agreed, abdominal obesity is population-specific. And even in Westerners, a difference of 14 cm in current abdominal obesity criteria across genders may be debatable, leading to dilution of MetS in women or a failure of encompassing men with MetS at increased cardiometabolic risk.

3. The essence of MetS is wide waist circumference and elevated triglycerides; HDL-cholesterol varies depending on the associated pro-inflammatory state that may induce HDL dysfunction which further promotes HDL dysfunction. Hardly any dwelling on hypertriglyceridemia can be noted.

4. Instead, several topics marginally relevant to MetS are discussed at length (pp. 9-12). These may well be omitted as may some one-third of the references.

5. The major shortcoming of current MetS definitions is that the pro-inflammatory state which should be an essential component and determinant of future cardiometabolic risk is left out of definitions on the –albeit justified- ground of lack of a unique biomarker. The greatest novel knowledge on MetS (and cardiometabolic risk) developed in the past decade has been the important role of pro-inflammatory state (reflected by hypertriglyceridemia) and for which various individual markers (CRP, GGT, uric acid, apoB, apoE, fibrinogen, SHBG etc.) have been documented, and the associated dysfunction of apoA-I and HDL (reviewed in Ref. 17, below). Most of this knowledge is derived from over a dozen papers of the Turkish Adult Risk Factor study (a selection listed below) which have been totally overlooked.

6. Gender is a modulator of the pro-inflammatory state and the associated future cardiometabolic risk. This needs to be described.


**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