Reviewer’s report

Title: Association of Blood Pressure with Development of Metabolic Syndrome Components: a Five-year Perspective Cohort Study in Beijing

Version: 3 Date: 15 July 2013

Reviewer: Altan Onat

Reviewer’s report:

This manuscript by Huo and associates seeks to investigate the incidence of MetS components relative to different levels of BP over a 5-year period. A sample of Chinese visitors of medical check-up at a hospital consisting of over 2700 subjects without cardiometabolic disorders at baseline were followed-up over 5 years. Transitions of MetS components were identified in optimal, normal, high-normal and elevated BP categories. It was concluded that MetS incidence rose with increase in BP category and that people with optimal and normal BP levels were little susceptible to developing MetS, whereas abnormal BP seemed to be a pre-existing phase of MetS.

Although the crude data of the study sample have the potentiality of contributing information, much is left to be desired regarding the premise of the study and the design. Following issued needs to be addressed.

1. The “perspective study” in the title should be changed to “prospective study”.
2. Please, state in the Methods how many subjects with MetS were excluded at baseline.
3. The total number of the study sample (2734 in the abstract) is discrepant with 2781 in the Methods and the tables.
4. Please, add age data to tables 1 & 2.
5. Authors take the premise that elevated BP is an early determinant in the development of MetS (see above), whereas it is an end-point related to each of the other 4 components, and mainly a consequence of systemic low-grade inflammation and apoA-I dysfunction (please consult Onat A, Exp Opin Pharmacother 2011; 12;1887, Onat A, Anadolu Kardiyol Derg 2013; Jul [E pub], Onat A, Am J Hypertens 2008; 21:890, Onat A, Curr Pharmaceut Design 2013 Apr 2 [Epub]). Therefore, the fact that MetS incidence increases with increase in BP category is an effect of other developments, not a cause in itself.
6. With the purpose of better uncovering the dynamics for and relationship of elevated BP, authors may design a modified approach and simplification as follows. Optimal and normal BP categories are, indeed, little susceptible to MetS and may be combined to provide the bulk (3/4 of the sample) to assess transitions (mainly increase in BMI).
7. The remaining normal-high and high BP groups might also be best combined and transitions in subsets be evaluated with special reference to P to H
(relationship to glucose) and P to P+ (T) +G and P to P. It is worth examining whether a lowering of diastolic (and systolic) BP coincides with new-onset diabetes.

8. Tables 1 & 2 indicate that mean diastolic and systolic BP decline significantly and substantially in each of the two BP categories of men and women. This may offer important information. [In women, the normal BP category also exhibits the stated trend]. Please, analyze and comment the findings to be elicited.

9. The Discussion requires substantial expansion and revision.

**Level of interest:** An article of importance in its field

**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