Reviewer's report

Title: Abdominal obesity largely explains the high CRP in Indigenous Australians relative to the general population, but not gender differences: a cross-sectional study

Version: 2 Date: 5 August 2010

Reviewer: Altan Onat

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The manuscript is improved by adding Table 2 and somewhat modifying the Discussion but much needs further to be done in terms of clearer and detailed presentation of findings and their more complete exploration.

1. Female sex, current smoking in men but not women, and IGT are major covariates of elevated CRP in both populations, independent of waist circumference. These should be stated in introducing the Discussion, the conclusion and the abstract. It should be clearer stated in the Results female current smokers and non-smokers had similar likelihood for elevated CRP.

2. By adjusting in a single regression model also for cohort and HDL-C, it is likely that interaction between the two parameters remains concealed. Hence, the association of these variables with elevated CRP is to be evaluated in a third table, stratifying for populations, after excluding diabetic individuals, best using age, waist, glucose tolerance status, smoking status, log triglycerides as covariates. Such an assessment may well disclose that ethnicity and HDL dysfunction in women are further independent covariates of elevated CRP. An indication of this is already present in Table 2 which shows HDL-C to be half as strongly associated with CRP in women (0.88; 0.77-0.97 per 1 SD increment) as in men of both cohorts. That HDL dysfunction is a novel fundamental mechanism in the development of cardiometabolic disorders has recently been documented (Onat & Hergenc. Metabolism 2010 May 28 [Epub] doi: 10.1016/j.metabol.2010.04.018, PDF attached).

3. In the newly added sentence in the Discussion starting with “a recent review suggested that ...(29)” the reference to Blum and Blum may be incorrect. The above stated review supports this sentence.

4. The sentence starting with “if BMI were used as the measure of obesity, …” is not clear. Should it be: “When BMI replaced waist circumference in the model in Table 2, (which) population became a significant determinant of elevated CRP in women”? Please, modify. If so, this means that interaction exists between sex, WC and cohort, a finding that should be highlighted. A greater role in women of overall obesity in elevated CRP levels and in increased vascular and metabolic risk have been previously reported in a prospective study (Onat A et al. Nutrition 2010; 26:382).

5. The Discussion may be shortened, concentrating more on own findings.
6. Fig. 1 adds no information.

7. A brief comment may be made for Fig. 2b suggesting that the use of ATP-III criteria is not optimal or appropriate for DRUID men (alike Turkish men).

8. Regarding Fig. 2c it merits to be pointed out that age is not related to CRP but menopause in DRUID women is highly relevant.

9. The abstract has a longer conclusion than results; this needs drastic change. Independent findings (female sex, current smoking, IGT, HDL and population) should be briefly stated in detail.

10. With reference to smoking, IGT and HDL dysfunction, the title is more appropriately to be worded as “Abdominal obesity inadequately explains gender differences in the high CRP in Indigenous Australians relative to the general population: …”.

**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