Reviewer's report

Title: Association of the smoking status with parameters of vascular structure and function in adults. Results from the EVIDENT study.

Version: 3 Date: 23 September 2013

Reviewer: Christian Ott

Reviewer's report:

The study examined the association of smoking status with parameters of vascular structure and function.

The study question is well-defined and statistics appropriate. Mostly, the data appear sound, the discussion focussed and limitations reported.

Major compulsory revisions:
- It should be clearly noted that this is a subanalysis of the EVIDENT study (NCT01083082), which was previously accepted for publication (Garcia-Oritz et al Am J Hypertens. 2013 Aug 24. [Epub ahead of print]).
- Only in about 1/6 (265 out of 1553 individuals) IMT and PWV was assessed. In this limited number of individuals, are there differences in clinical characteristics according to their smoking status? Hence, should additional/ other parameters be taking into account for multivariate analyses.
- The limited number should be given in the abstract as well as limitation.
- In contrast to radial AIx, central AIx is established and acknowledged as marker of pulse wave reflection. Radial and central AIx are not interchangeable. This should be addressed in the manuscript.
- It is stated in the results “PWV behaves likewise although it does not reach statistical significance”. Moreover, it is given in the discussion “After controlling for confounders, we found no association between the presence of smoking and increased arterial stiffness, although the trend is similar to that found in relation to IMT.”

However, according to multivariate analysis p-value for PWV was 0.621 (Figure legend). Explanation?
- The given conclusion is too strong!

Minor essential revisions:
- In the methods section, it should be clearly outlined that smoking was not allowed within 3 h prior to measurement (i.e. not only for PWV, but also for central BP and PAIx).
- PAIx is higher in non-smokers compared to former smokers as well as smokers. Any explanation?
- No data about maximum IMT are given, as outlined in “variables and
measurement instruments”.

Discretionary revisions:
- Table 1:
  o Please provide units for all parameters.
  o Waist circumference for men and women is interchanged.
- Table 3: Please add p-values.
- Figure 1: Please add correlation coefficient and p-value.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**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.