Reviewer's report

Title: Procalcitonin predicts all-cause and cancer mortality in apparently healthy men: a prospective population-based study

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Reviewer: Pierre Hausfater

Reviewer's report:

The authors report an innovative and interesting aspect of the biomarker PCT: The association between it's baseline level, in a cohort of apparently healthy men population, with all-cause and cancer mortality. The subject is of double importance: to go further in the comprehensive aspects of the relationship between chronic inflammation and cancer development and/or mortality, and to elucidate the pathophysiological role of PCT.

1. Major compulsory revisions: any
2. Minor essential revisions

In table 1: as PCT levels may be influenced by renal dysfunction, was there any association between cystatin C concentrations and PCT quartiles ? Please indicate in the table if so.

The difference between table 2 and 3 is not clear. Please add in the table's title the footnote that explains which variables were adjusted for in the cox regression analysis, respectively in table 2 and table 3

In the discussion, the pathophysiological hypothesis to explain the association between PCT level and all-cause and cancer mortality is that PCT may be a marker of chronic inflammation which in turn may participate to cancer development (at least in several localizations). However, according to me, PCT is rather a sepsis-induced inflammatory response biomarker rather than really a global inflammatory biomarker as CRP. This is illustrated by the fact that PCT is able to discriminate between sepsis and inflammatory syndroms of non bacterial (viral for example) origin, like in auto-immune disesase flare were CRP is elevated and PCT not. Could the authors comment this ?

Lung small cell carcinoma has been associated with "false positive" serum PCT level. Although the number of lung cancer was to low in the cohort to allow the identification of a putative association between PCT baseline levels and the development of lung small-cell carcinoma, could the authors comment this in the context of their hypothesis ?

3. Discretionary revisions: any

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 me or my organization have received research fundings and lectures honorarium by ThermoFisher Scientific and bioMérieux, both providing PCT assay.