Reviewer's report

Title: Ruling out coronary heart disease in primary care patients with chest pain: a clinical prediction score

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Reviewer: Bert Aertgeerts

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The aim of this study was to develop an ambulatory CHD predictive score based on patient’s history and physical examination to rule out CHD.

They used data from a multicentre clinical cohort (TOPIC) and validated the prediction rule within another cohort in the same country.

Selection of patients:
Family practitioners consecutively enrolled all patients over 16 years of age who reported any type of chest pain, including trauma.
- Why including trauma of the chest, that could be, in a prediction rule, very quick ruled out.
- Chest pain was not the chief complaint of the study, so it could be argued that this this part of patients did not have a CHD
- Also known chest pain was recorded, so not only new episodes were recorded.
- Only 48.8% of the patients had never experienced the same pain before, and nearly 20% had previous evidence of CHD.
- How many patients of the 85 with a diagnosis of CHD had already the diagnosis of CHD?

Reference test:
The authors used a delayed diagnosis over one year to detect patients with CHD, if the diagnosis was not clear, the diagnosis after three months was retained.
- It remains unclear how the final diagnosis was made, the reference test was not well defined. Had all the patients the same reference test, or are the authors certain that they did not missed a diagnosis of CHD?
- Verification bias occurred when not all patients had and the index test and the reference test at the same time. How the authors dealt with that issue?

Index test, signs and symptoms:
16 factors were chosen as potential predictors of CHD. They were well described.

Blinding reference test and index test:
- As there were patients who had already a CHD, the GP was not blinded, or was this a new episode?
- Were the expert blinded to patient’s clinical conditions as stated in the validation study? The authors answered that question in the discussion section.

Validation study:
The authors did already a validation study within 1199 patients aged 35 and over with chest pain.

This study is a well designed diagnostic study with all the relevant flaws that are inherent to this type of study conducted in a primary care setting. The statistics were carried out properly and most of the problems with this kind of designs were addressed.

Nevertheless, as most of the prediction rules the authors were able to rule out most of the patients without the conditions, but the PPV remains low.

The main question is about the added value of “regular” signs and symptoms in primary care. Nevertheless, it will be interesting to see if GPs could use this set of signs and symptoms in a clinical setting.

**Which journal?**: Appropriate or potentially appropriate for BMC Medicine: an exceptionally interesting article

**What next?**: Accept for publication in BMC Medicine after minor essential revisions

**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