Reviewer's report

Title: Usefulness of C-reactive protein testing in acute cough: an open cluster-randomised clinical trial with CRP testing in the intervention group

Version: 1 Date: 20 June 2013

Reviewer: Michael Moore

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Moore- Usefulness of C reactive protein

This is a description of a small cluster randomised trial looking at the role of CRP in management of LRTI in primary care. The question is well defined. There is no power calculation.

Methods

The methods are appropriate. The method of randomisation is not described. It is not clear whether the GPs worked in groups or in isolation. The potential for contamination between groups is hard to assess. CRP training appeared to be offered to both intervention and control groups, presumably prior to randomisation?

The inclusion criteria were listed as Patients with LRTI/acute cough (including acute bronchitis, pneumonia, and infectious exacerbations of COPD or asthma) were included

However the CRF included the option of a diagnosis of URTI and in the study 48% and 39% of patients included were labelled as URTI. The title of the study suggests the study is examining CRP in acute cough. These three statements indicate a different clinical syndrome. The authors need to clarify whether the study was in

-Acute cough (including LRTI and URTI) as in the title
-LRTI as in the inclusion criteria
-A mixture of RTI syndromes as per the CRF

(I note that only 60% of participants reported cough in the baseline table)

The CRF collected a large amount of detailed information on symptom severity none of which is presented in the baseline table.

Results

The recruitment between intervention and control was unbalanced both in the numbers (101 intervention vs 78 control) and in the apparent severity of illness with more severe symptoms at baseline in the intervention group. The difference in numbers may be due to practice size but is not discussed. The baseline difference in severity is not accounted for in the analysis.

The rate of chest radiography was astonishingly high (55% in intervention and
76% in controls) especially since nearly half of the participants the primary diagnosis was URTI. The rates of community acquired pneumonia were high for a primary care sample (7% intervention and 16% control). This compares to 5% in the GRACE study which only included LRTI patients. It is not clear how the diagnosis was confirmed and whether there was independent review of xray diagnosis. It is surprising that such high rates of CAP were seen in the control arm in which symptoms were less severe and in whom URTI was the clinical diagnosis in 39%- by my estimation approximately 1/3 of participants without URTI ended with a confirmed diagnosis of pneumonia in the control group.

Discussion
There is a good discussion of the literature but inadequate exploration of the weaknesses of the study. The imbalance in numbers, imbalance in severity, high CAP rates, high radiology rates all should be explored.

Recovery rates were similar between arms when assessed at a follow up consultation. It is not clear how these evaluations were completed but I do not think they were performed by someone independent or blind to the intervention. The scale was a simple five point scale. It is premature to suggest that this is evidence of uncompromised recovery. The diary data has not been presented which will give a patient led estimate of recovery and the study is unlikely to be powered for adverse events.

The conclusion is probably supported by the data but the many weaknesses of the study and analysis means it should be much more circumspect.

I regard improved clarity of title/inclusion
A power calculation
Better description of randomisation and of participating GPs
Results
Discussion
As essential

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests'