Reviewer’s report

Title: A randomised controlled trial of three or one breathing technique training sessions for breathlessness in people with malignant lung disease.

Version: 3
Date: 6 July 2015
Reviewer: Matthew Maddocks

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Johnson and colleagues report on a randomised controlled trial testing the superiority of three sessions versus one session of breathing training, to reduce breathlessness (worst intensity over 24h) in patients with thoracic cancer. The authors identified no additional benefit from three sessions and concluded that one session of breathing training represents a more cost-effective means to deliver this intervention.

The trial concerns an important clinical question and the findings are likely to be useful to a large multidisciplinary audience. Major strengths of the trial are its external validity – participants from multiple settings were offered a pragmatic intervention – and the novel concept of an optimal dose of supportive care – considering adverse effects of excess treatment burden.

I suspect the main findings and interpretation will not change, but to support a recommendation for publication, several items require attention:

Major:

Different patient flow numbers are reported in the text, figure 1 and table 3, and the absolute numbers do not match percentages (e.g. page 6, para3, 131/156 does not equal 86%). In all cases there appears to be selective attrition of patients (worse performance status, worse breathlessness NRS) and higher attrition in the one session group, which would reduce the chance of observing a difference if three sessions were superior.

Minor:

The statistical methods text uses different tenses, refers to incorrect tables (Table 2 not Table 1), proposes analyses that are not to be presented (psychological traits), and repeats earlier text (stratification by site reported under randomisation). The planned use of imputation (primary outcome not secondary outcomes) does not match reported results, e.g. imputed QALYs, ‘sensitivity’ complete case secondary outcomes. Some re-ordering would improve readability.

The manuscript would benefit from more consistent terminology, e.g. shortness of breath vs. breathlessness; one session vs. single session; trial vs. study; patient vs. participant; arm vs. group; three then one session vs. one then three
sessions. Table 3 introduces the terms high-intensity and low-intensity which don’t feature elsewhere.

Page 5, para 1 – useful to specific what the authors mean by ‘earlier consent’
Page 7, para 4 – the text suggests weekly descriptive will be reported (graphical representation of the primary outcome may be interesting) thought only weeks 4 and 8 are offered.
Page 9, para 4 – suggest insert ‘breathing’ before training in last sentence.
Page 10, para 1 – suggest insert no ‘objective’ measure of physical activity.
Page 11, para 1 – the final pre-conclusion point could be spelt out more. I read it that the authors are suggesting breathlessness services can serve more patients if they adopt a standard of one session of breathing training and assuming services are offering more than one session currently. This is an important point for readers but is only implicit in the current text.

Dr Matthew Maddocks

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

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