Reviewer’s report

Title: Fatigue, Barriers to Physical Activity and Predictors for Motivation to Exercise in Advanced Cancer Patients

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Reviewer: R. Thomas Jagoe

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BMC Palliative Care

Fatigue, Barriers to Physical Activity and Predictors for Motivation to Exercise in Advanced Cancer Patients  Frikkel et al

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There is a relatively little data to show exercise can improve cancer-related fatigue in many patients with advanced cancer but there are few if any other effective treatments. By extension from other patient groups it is reasonable to expect that PA may have benefits including improved physical functioning and symptoms. However, as the authors highlight only a minority of patients actually perform PA regularly and there is a need to better understand their motivation and barriers to PA in those with advanced disease to be able to facilitate PA in more patients.

The current study sets out to explore this in a mixed cohort at their centre and selected those with moderate or severe reported weakness/tiredness as a subset who might be most likely to benefit from PA. The setting is appropriate, but the report lacks clarity in some critical areas both about how patients were selected and how data was collected and in relation to the analysis and the conclusions drawn.

Main points:

1. Patient selection: for sequential ACP with weakness/tiredness of moderate or severe intensity, how was this defined - i.e. what was the measure used and the threshold?

2. What is background situation and availability of PA at the cancer centre - is this provided within the cancer centre or is prescribed by someone else and is it paid or free? Could these patients access supervised PA easily if they were motivated or is it difficult and more of a theoretical questions for most?

3. Page 2 line 3-4: Was data retrieved from patient charts on things like PS, BMI etc current for time when assessment was performed and if not how out of date (time interval) between say BMI measurement and completing questionnaires for the study?

4. Page 2 line 10-11 "Additional 6 items of the FACT-G core module focusing on anaemia and not CRF related concerns completed the analysis of CRF" doesn't make sense - do the authors mean they used the FACiT-F Fatigue subscale to assess fatigue?
5. Page 6 and Fig 1: 15 vs 35% of inactive vs active patients had Breast CA and this is the cohort (Breast cancer patients) with the most evidence for benefit - is this an important confounder?

6. Page 6 line 14: Raised CRP is very frequently cancer-related in ACP and cannot be assumed to be due to an infection especially at this low threshold.

7. Page 6 line 18 using the BMI alone to define cachexia is highly flawed (see Fearon et al Lancet Oncology 2011) and again not easily categorise as 'treatable'.

8. Page 6 line 23: Barriers to PA : This is not clear at all - some of these were patient reported barriers and some seem to be simply investigator observed symptoms. E.g. How did the investigators establish that having systemic treatment of two or more symptoms was a barrier to PA - is this what the patients reported as their barriers?

9. Page 6 line 37: Group comparison of PA active and inactive. This seems to be evidence from the same cohort that the factors identified above as barriers to PA are NOT in fact barriers i.e. no difference in systemic treatment of presence of &gt;2 symptoms orCRF

10. Page 6 line 54: Psychological barriers: This includes data collected on prior PA habits which was not discussed in the methods - how was this collected and what time period was considered etc?

11. Page 7 line1 Social Barriers: The list of social barriers assessed seems very short and does not encompass all likely/possible barriers. Whilst this may have been the list of factors found in prior studies of adjuvant patients, as the authors point out those with metastatic disease are usually in a very different situation and likely different social and other constraints. Would it not have been more informative to give participants the option to say what their (social) barriers might have been (in free text) and then classify or group them by similarity?

12. Page 7: Regression modes. For both models (PA and Motivation) a more detailed description of how they were constructed needs to be included. How were the factors selected for the model and how independent were they e.g. were interaction terms included etc? Was Breast cancer vs not Breast cancer a major explanatory variable in both models??

13. In light of the points and issues raised above the discussion and conclusions need to be modified considerably and re-written. In particular the comparison of patients who were active vs those who were not appears to be one of the most powerful tools to determine what are genuine barriers and those that are not. Also this comparison may be a way to explore what makes people motivated to continue PA etc
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No

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