Reviewer’s report

Title: Feasibility of evidence-based diagnosis and management of heart failure in older people in care: randomised controlled trial

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Reviewer: Robert McKelvie

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Summary
This paper examines the benefits of an onsite heart failure service compared to usual care in the long term care setting. The main aim of the study was to establish the feasibility of accurate diagnosis and appropriate management. This was a pilot study of 28 patients who consented and were randomized to either the heart failure service (16 patients) or usual care (12 patients). The primary outcome was the prescription of ACE-inhibitors and beta blockers at 6 months. The original plan was to recruit 125 residents which would require 500 residents to get the sample. However, as the study went on it was clear there was an underestimation of the prevalence of heart failure with reduced LVEF and thus the proposed sample size could not be achieved. Therefore the study was converted into a pilot study of 25 to 30 patients. The revised sample size suggested that 25-30 patients would be required to show a difference in the primary outcome if it existed. The findings of the study did not show a statistically significant difference in the pattern of drug use for the heart failure service group compared to the usual care group. The authors state that despite an absence of a statistically significant difference there was a trend for a consistent pattern of increased drug use in the heart failure service group compared to usual care.

Major Compulsory Revisions

1. This paper purports to examine evidence based diagnosis however details about the manner in which the diagnosis was made are lacking. Heart failure is a clinical diagnosis but all that is stated is that there was an echocardiogram performed and they were assessed by a cardiologist. There was no mention of where the testing was done, whether natriuretic peptides were measured, chest x-ray or other details about the diagnosis.

2. The manner in which the intervention group was followed is unclear. It seems the cardiologist made the initial plans of management and then the HFSNs carried out the plan and followed the patients. There was no mention about who the nurses would contact if the resident ran into difficulties.

3. In the methods it was stated that ramipril and bisprolol were used as the standard. However it seems patients received other types of drugs from these groups. Especially in the usual care group. So it appears that it was fine to use any type of ACE-inhibitor and beta blocker.

4. Who was responsible for sending the letters to the GP, was it the nurse or the
5. It seems in the routine care (usual care) group the residents received echocardiogram results and a letter was sent to the GP outlining a personalized HF management plan. However, it was never made clear who was responsible for sending the letter and more importantly who was responsible for the personalized HF management plan.

6. Patients were randomized rather than long term care facility being randomize. The issue with this is there could be GPs that have patients in both the groups and this could potentially lead to contamination between the two groups.

7. In the results they state 19 of the patients are NYHA I. In effect these patients were asymptomatic. However, they state that 3 of the patients were not eligible because they were not symptomatic. This really does not make sense because 19 of the patients were not symptomatic so why were they included?

8. In the Table the authors state 15 patients were NYHA I, whereas in the text of the results they state 19 were NYHA I. As well the number of patients who were NYHA II/III and IV listed in the text of the results does not match what is reported in the table.

9. It is interesting that I could not find any information about the average LVEF for this group of patients in the study.

10. There seems to be little information about the usual care grouping regarding whether or not they could tolerate increases in drug therapy. Of course based on the design of the study one would assume the control group should tolerate up titration of therapy but this was never explicitly described to be the case. Given the small sample size it is possible by chance that a number of the patients in the control group may not have tolerated further up titration of therapy.

11. A comment was made in the results section that the diagnostic assessments were acceptable. However there is no description as to what type of diagnostic work up these patients were subjected to in order to make the diagnosis of heart failure.

12. In the discussion the statement is made that the intervention group attained a higher level of evidence-based treatment of optimal doses of ACE-inhibitor and beta blocker. However statistically this is not true so I think they are over stating the case. This is a very small study so if the numbers were larger this trend could potentially disappear.

13. It seems that a number of patients were not taking bisoprolol and there is no mention of the other types of beta blockers used. This is an important omission because not all beta blockers are recommended for the treatment of HF. Although looking at the tables it may be that there were not many on beta blocker other than bisoprolol. Given the small number of patients I think it is worth reporting the other types of beta blockers used in the study.

14. In the discussion the statement is made that the magnitude of change over 6 months might have been even higher if existing cases of LVSD were excluded… I am not sure if this is true because drug therapy was not great at the beginning of the study even for people with existing LVSD.
15. The comment in the discussion was made that the low numbers of hospitalisations for both groups was reassuring and that the intervention did not increase hospitalizations. However this may have been a lower risk population because 19 of the patients were NYHA I, there was no mention of previous hospitalizations; however as mentioned previously there was no documentation of the LVEF. In order to better define the population there should be some mention of previous hospitalizations etc.

16. The observation that treatment levels don’t seem to be maintained is interesting and it is unfortunate there is not more information about the possible reasons for this reduction in therapy. One possibility may be there was not good knowledge translation to the GPs. In other words they were not provided with effective plans to keep the patients on the more intensive therapies.

Discretionary Revisions

1. It might be reasonable to divide table 2 into 2 tables with one of them dealing with 6 month follow up and the other with 12 month follow up.

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I have no competing interests.