

Reviewer #1:

Specific Comments to Authors:

Dear Sir Thanks you for inviting me to review the editorial titled 'Latest updates on the structure and the recommendations of cardiac rehabilitations programs in chronic heart failure' The delivery of cardiac rehabilitation in patients with heart failure is an interesting topic and worthy of further discussion and research.

General points

The editorial is reasonably well written although there are a couple of sentences that I did not understand and need re-written. The authors stress the 'wide spectrum of functional and physiological variables' used to assess CR but I think they could do more to critically appraise these and should make a stronger point that surrogate markers should be interpreted with caution and perhaps we should be focusing on what is important to patients - this seems to be missing from this editorial. I would suggest that mortality and all cause admission to hospital are more important than many of the variables discussed. Furthermore I think the authors should discuss in greater detail the general lack of high quality research in CR (compared with pharma trials) and also the lack of strong mortality outcomes. Many CR trials are small and some of the mantra comes from metanalysis of small trails at high risk of bias. So while I am an enthusiast for CR we need to temper our enthusiasm when faced with the fact that hard outcome data in CR is lacking and where it is present the outcomes have been disappointing e.g. RAMIT study. I would rather see a focus on patient focused outcomes coupled with large RCTs (although I accept that blinding is an issue) rather than surrogate outcomes such as CPET testing. HFpEF seems to be a larger problem in terms of patient morbidity and admission to hospital and I think the authors should comment on this and the need for cardiologists and cardiac services to focus on this patient group, which has not been the case in the past. Specific points As the pages and lines were

not numbered it is difficult to comment and therefore, I have attached my comments on the document.

Authors: We would like to thank the reviewer for his/her valuable comments. We are pretty sure that these comments will help us to improve the quality of our editorial. We have made all the appropriate corrections (highlighted yellow) in the manuscript according to the reviewer's excellent suggestions.

The specific changes in the manuscript are as follows:

Mortality rates from hospitalized patients is shown to be lower in patients with heart failure with preserved ejection fraction (HFpEF) compared to patients with HFrEF (adjusted hazard ratio [HR] 0.68, 95%CI 0.64-0.71)^[6].

In HFmrEF, data still remains limited. A recent study showed that early CR significantly reduced cardiac death and re-hospitalization in these patients^[12]. However, more studies regarding the potential benefits of CR are mandatory.

The cardiopulmonary exercise testing (CPET) is the gold standard for the diagnostic evaluation of exercise intolerance, as well as for individualized prescription of structured physical training, along with the functional impairment reported by patients^[14].

However, this definition is not established in all countries, indicating a global variation regarding stages of CR.

All these outcomes are objective and measurable in the effectiveness of a CR program. However, their importance on patients with HF is controversial. They are useful when there is also a clinical relevance such as improvement in their symptoms and daily activities, increase of their exercise tolerance and improved quality of life. In other words, surrogate markers should be interpreted with caution and, perhaps, we should be focusing on what is important to patients. Probably, mortality and all cause admission to hospital seem to be more important than many of these variables. Unfortunately, data from the largest trials have been disappointing so far. For instance, the RAMIT

study that compared 1813 patients after myocardial infraction referred to comprehensive CR programs or discharged to “usual care”, found no important effect on mortality, cardiac or psychological morbidity, risk factors, health-related quality of life or activity^[18].

LIMITATIONS AND FUTURE PERSPECTIVES

Due to the lack of data in all types of HF, more randomized controlled trials are required. Specifically, there is a general lack of high-quality research in CR compared with pharma trials and lack of strong mortality outcomes in both HFpEF and HFrEF. Many CR trials include small samples and the most significant data derive from metanalysis of small trails, which is at high risk of bias.