Reviewer’s report

Title: Therapy optimization in patients with heart failure: the role of the wearable cardioverter-defibrillator in a real-world setting

Version: 0 Date: 14 Jan 2018

Reviewer: Luca Donazzan

Reviewer’s report:

In the article entitled "Therapy optimization in patients with heart failure: the role of the wearable cardioverter-defibrillator in a real-world setting" Dr. Röger and colleagues report a single centre experience of wearable cardioverter-defibrillator (WCD) use between April 2012 and September 2016 with a mean WCD wear time of 68.8±50.4 days and a mean follow-up of 18.6±12.3 months. The two main indications for the use of WCD were newly diagnosed ischaemic cardiomyopathy and non-ischaemic cardiomyopathy (with LVEF≤35%). WCD was useful in the selection of type of ICD implantation (single- vs dual-chamber, subcutaneous vs trans-venous). Overall, there were 5 appropriate shocks in 5 different patients. Authors report a significant improvement in LVEF at the end of the wear time, which could reduce the ICD indication in about 50% of patients.

The article is well written. There are some typing errors in the text and figures.

WCD is a new device ensuring arrhythmia recognition and sudden cardiac death prevention in a multitude of patients.

The 2015 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death state that "The WCD may be considered for adult patients with poor LV systolic function who are at risk of sudden arrhythmic death for a limited period, but are not candidates for an implantable defibrillator (e.g. bridge to transplant, bridge to transvenous implant, peripartum cardiomyopathy, active myocarditis and arrhythmias in the early post-myocardial infarction phase)." The safety and effectiveness of the WCD in saving lives has been documented in publications including the first testing reported by Auricchio et al., the WEARIT trial and the BIROAD study. Since then many registries have been published: WEARIT-II (including 2000 patients), Aggregate national experience with the wearable cardioverter-defibrillator in the US (Chung et al., 3500 patients); a German experience (Waessnig et al.) with more than 6000 patients enrolled; an experience of the use of WCD post myocardial infarction (Epstein et al., more than 8000 patients), and other retrospective registries.

I have the following comments:

- Authors report three major findings of their study. Regarding the first two major findings, data published are in line with previous larger prospective studies and retrospective registries.
- The population is too small to permit interesting conclusions about predictors for arrhythmias and ICD implantation reduction.

- Thirty-seven of 84 patients returned their WCD earlier than the prescribed three months (early LVEF improvement 57%, incompliance 32%, appropriate shock 8% and non cardiovascular death 3%), what about the further follow-up of these patients? What is the suggestion of the authors for the management of patients with incompliance?

- Please note that half of the NICM patients who had late LVEF improvement received a CRT-D device.

- A male patient aged 71 received an effective shock 154 days from start of WCD wear time, please comment on that long wearing period (systemic infection is reported, was the patient in-hospital during the 154 days? Was it a bridge to trans-venous implant? When did the patient receive the implantable ICD?).

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:
1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal