

Dear Jin-Lei Wang

Re: Sudden cardiac death and wearable defibrillators – which patient might benefit?

Thank you for you and the reviewers' comments.

We have revised our manuscript in view of these comments and believe it is improved and hope that it is suitable for publication.

We have described in detail the changes made in response to each of the comments below.

All authors have seen and approved the changes.

Yours sincerely,

Hilal Khan

(on behalf of the authors)

Detailed response to reviewers' comments

Reviewer 2(Reviewer code 00227341)

RQ1.1 - The authors focus the article on the history of defibrillation and on the risk factors of sudden death in the different cohorts of patients that have taken into consideration. But the title of the article refers to groups of patients who might benefit from the WCD and not on the risk factors of the individual cohorts.

AR1.1 - I would like to thank you for your time in reviewing this paper. In response to your above statement we have modified our title as we agree it did not properly reflect the topics we had intended our paper to cover. The new title will be "Risk factors for sudden cardiac death to determine high risk patients in specific patient populations that may benefit from a wearable defibrillator"

RQ1.2 - ESC guidelines recommend an ICD implantation for all patients listed for transplant in a New York Heart Association class IV, whereas WCD use as a bridge to transplant is an alternative (recommendation level class IIa and IIb, respectively). In addition another population who may benefit from an extended use of WCD is children and younger adults. In these patients the main causes of increased arrhythmogenic risk were cardiomyopathy, primary arrhythmia (without specification), and congenital heart disease especially in the ≤ 18 years of age cohort. Finally, in addition to the groups of patients in which there is a recommendation to use WCD, there are other groups of patients to be better defined up to now with indications considered unconventional, such as myocarditis, cardiomyopathy peripartum, tako-tsubo cardiomyopathy and chronic renal failure in the stage advanced.

AR1.2 - In respect to heart transplantation this would be covered in heart failure BUT we could add a specific comment on transplant within this section - as a bridge to definitive treatment (page 12 lines 30-31 and page 13 lines 1-3). We have added a paragraph on non-ischaemic cardiomyopathy (Page 13, lines 4-15). In addition to the other areas mentioned we did state specifically in the method section that we were looking at risk factors for SCD only in patients post MI, patients with LVSD, patients with HCM and in patients with LQTS. We can however add comments addressing these groups in the discussion section (Page 14, line 7-22).

Reviewer 3(Reviewer code 03722832)

RQ2.1 - Most parts of the author's manuscript are redundant if the author is reviewing the current status of the "The wearable cardioverter-defibrillator"

AR2.1 - The authors feel that the original title may have contributed to some uncertainty regarding the purview of this paper and have adjusted it accordingly to "Risk factors for sudden cardiac death to determine high risk patients in specific patient populations that may benefit from a wearable defibrillator". The purpose of the article is to look at risk factors for SCD in patients post MI, patient with LVSD, patients with LQTS and patients with HCM. The compilation of risk factors such as this will be convenient in selecting patients for WCD therapy who are at high risk for SCD but based on current guidelines do not meet criteria for ICD implantation. The authors are happy to respond to specific comments or requests for change to the manuscript.