



Telemonitoring Implantable Cardiac Devices in Reducing Heart Failure Complications: An Updated Systematic Review

Introduction: As a newly invented technology, the use of telemonitoring (TM) in healthcare only has weak evidence in international guidelines.

Significance This systematic review serves to supplement the evidence gap to determine whether telemonitoring implantable cardiac devices can reduce all-cause mortality and heart failure (HF)-related hospitalization in worsening heart failure compared to standard care. This innovative communication technology could revolutionize healthcare by sending the right message and effectively detecting upstream predisposing factors to improve heart failure outcomes.

Methods Electronic databases EMBASE and MEDLINE (Ovid), Web of Science and CENTRAL were searched for English full text randomized controlled trials (RCT) for adult heart failure population in peer-reviewed journals from 2010 up to 14 of November 2020, supplemented by a second search in clinicaltrials.gov. Articles were extracted and screened independently by two reviewers with their validity assessed.

Results 11 randomized controlled studies that enrolled a total of 5588 patients were identified. 10 trials reported on all-cause mortality with 512 deaths and 10 trials reported on hospitalization with 2121 patients admitted. Modified Cochrane Collaboration tool is used to assess risk of bias of the trials. CASP (Critical Appraisal Skills Programme) checklist is utilized to critique on the quality of the RCTs.

Conclusion Of all types of implantable cardiac devices, intrathoracic impedance fluid monitoring did not show improvement in outcomes while cardiac rhythm and pulmonary pressure monitoring show the highest effectiveness in reducing heart failure related hospitalization.

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