Last before-death alert remote monitoring transmission in patients with heart failure with reduced ejection fraction. Much ado about nothing

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Related article
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Remote monitoring (RM) of cardiac electrical implantable devices (CIEDs) is the application of communication technology to patients wearing a pacemaker, implantable cardioverter-defibrillator, or cardiac resynchronization therapy device [1].

RM technology has undergone many developments in recent years, ranging from the original transtelephonic monitoring to the currently available CIEDs with wireless telemetry capabilities, from fax reports to a social network system service, from wired to wireless interrogation, and from one-way to two-way transmission [2, 3].

Taken together, these innovations have made it possible for RM, when applied to patients with heart failure with reduced ejection fraction (HFrEF), to reduce costs associated with follow-up of CIEDs [4], to detect arrhythmias early [5], and to reduce heart failure-related hospitalizations and, most likely, mortality [6] (Figure 1).

In this issue of *Kardiologia Polska* (*Kardiol Pol*, *Polish Heart Journal*), Dyrbuś et al. [7] show the results of a subanalysis of the COMMIT-HF registry regarding the last transmissions delivered by the remotely monitored CIEDs in a large cohort of patients with HFrEF.

The authors find that of the 1271 patients whose devices transmitted at least one message to the RM center, 198 (15.6%) had no alarm transmission, whereas 1073 (84.4%) had at least one alarm transmission. The respective mortality in patients with and without alarms during MRI was 29.7% and 12.6%. In patients without an alarm transmission, the

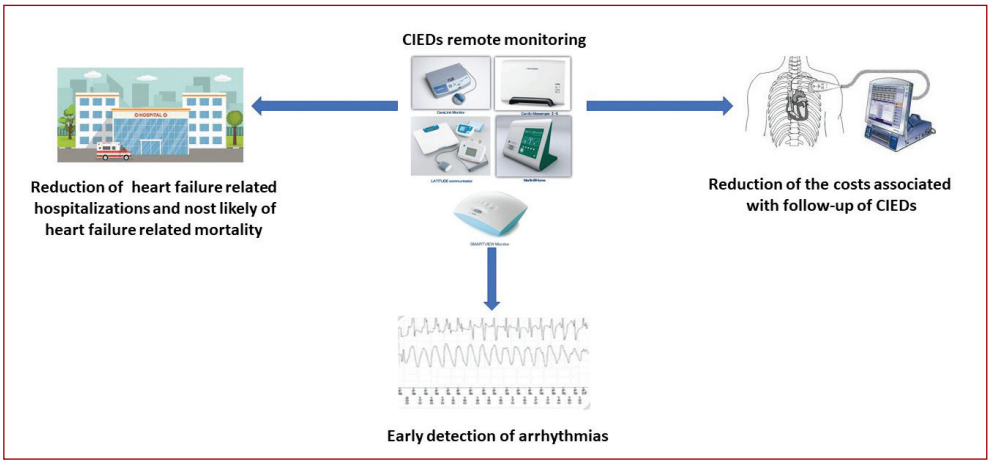

Figure 1. Benefits of using remote monitoring in patients with heart failure with reduced ejection fraction
Abbreviation: CIEDs, cardiac implantable electronic devices

last recorded transmission before death was scheduled in 166 patients and activated by an alarm in 152 patients. The most frequent alarm-activated last transmissions were atrial fibrillation/atrial flutter (39.4%) and ventricular tachyarrhythmias (26.8%).

Approximately 44% of ventricular tachycardias and 93% of cases of ventricular fibrillation were treated with the device, and 11 cases of transmitted arrhythmias met the criteria for an electrical storm.

Additionally, in 15 patients (10.6%) there was a reduction in biventricular pacing, and in 26 (18.3%) there were other causes of alarm transmissions, including indications of congestion.

Of the 142 patients in whom the last transmission was triggered by the alarm, 78 (58.2%) died in the hospital, whereas the remaining patients died elsewhere.

The results of this study are interesting and are worth some consideration.

First, most of the alarms were triggered by supraventricular arrhythmias (atrial fibrillation/atrial flutter) but did not generate a clinical reaction, either because such rhythms had already been known in the patient or because the patient had already been hospitalized. Therefore, these alarms did not lead to a change in clinical behavior on the part of the medical staff.

Second, the alarms for ventricular arrhythmias, which accounted for 26.8%, were in most cases associated with a delivery of therapy by the device, presumably with subsequent presentation of the patient in the emergency department or hospital. Even in this case, therefore, these alarms did not determine a change in clinical management.

Finally, 10% of the alarms were for a reduction in biventricular pacing, most likely due to an increase in the ventricular arrhythmic burden, in which case a change in drug therapy would have been desirable and likely useful for the patient.

Considering the above, it is my conviction that RM is futile during the end-stage phase of heart failure, in which the alarms (programmed or not) sent to the RM center add little to the stratification of the risk of death of the patient and do not modify clinical management at all.

In the future, the implementation and improvement of new risk scores that combine clinical and electrical parameters obtained by MRI, such as the SELENE score [8], will effectively improve the prognosis of patients with HFrEF, allowing medical staff to obtain useful tools for the management of these patients even in the terminal stages of the disease.

Article information

Conflict of interest: None declared.

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