The value of a novel model of remote monitoring alert classification of cardiac implantable devices

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Introduction: Remote monitoring (RM) is commonly used in the follow-up of patients with cardiac implantable devices (CID). However, there are a significant amount of automatic alerts of low clinical relevance. An alert classification model designed to optimize the management of RM alert in CID receivers can improve the analysis.

Purpose: Assess the effectiveness of a local protocol for review and classification of MR alerts.

Methods: Retrospective study, single center. We included all patients with ICD +/– CRT in the RM program between september 2016 and december 2019. All transmission received were analyzed. The priority of the transmissions was established based on clinical criteria and device parameters, classified into 3 categories from lowest to highest priority: green, yellow and red. Each category involved a specific action protocol (Figure 1). The categorization by colors was initially carried out by a remote support center, based on data from the devices; and later, reviewed by arrhythmia nurse team who incorporated clinical information data. In case of discrepancy, the alert was again evaluated together with the cardiologist. The degree of concordance in the categorization of alerts was analyzed, as well as the transmission response time (TRT): support center- care team.

Results: In our center a total of 1013 patients were included (68±14 years old, 76% male), who completed 8755 remote transmissions. The initial classification of transmissions by the support center was: 6890 (78.7%) green, 1497 (17.1%) yellow and 368 (4.2%) red. Only 0.62% of transmissions required reclassification by the healthcare team. No alert initially classified as yellow or green should be reclassified to red. The TRT was 3.35 hours for the red transmissions and 5.6 hours for the yellow ones.

Conclusion: The categorization of alerts in our RM system allows an efficient and safe organization of assitance to patients with CID.

Figure 1. Model of Transmission Classification