The Wearable Cardioverter/ Defibrillator: retrospective analysis of efficacy, safety and adherence

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Background: The use of the Wearable Cardioverter Defibrillator (WCD) is recommended in national, European and American guidelines. However, there are almost exclusively data from the manufacturer's own data network. Independent data on the experience with the WCD are rare.
Objective: The aim of the retrospective study from one cardiologic department was to record efficiency, safety and compliance of the WCD.
Patients and methods: The study included all patients, to whom a WCD was described between 1.11.2010 and 1.5.2018 at one cardiologic department. Clinical data were obtained from the patients' records and the data about the WCD from the information network of the manufacturer.
Results: This study enrolled 66 patients, 51 males (77%) and 15 females (23%). The median age was 55 years (IQR: 45–63). They suffered from ischemic cardiomyopathy (n=33; 49%), dilated cardiomyopathy (n=12; 18%), myocarditis (n=7; 11%), explantation of an implantable cardioverter/defibrillator (ICD; n=5; 8%) and other indications (n=6; 9%).
The median wearing time of the WCD was 73 days (interquartile range-IQR: 39–126), with median daily use of 22.91 h (IQR: 19.58–23.61). Among 38 patients with LVEF $\leq$35%, LVEF improved to $\geq$35% in 19 patients (50%) during WCD therapy. Over 1600 times the WCD detected a VT falsely. Four patients (8%) suffered from 212 non-sustained VT. One patient was successfully shocked because of ventricular fibrillation (appropriate shock rate: 1.5%). There were no inappropriate shocks. All patients, who wore the WCD, survived and one patient died when he did not wear the WCD.
At the end of therapy 32 patients (48%) received an ICD. In terms of wearing time and events (shocks, arrhythmias, artifacts) there were no significant differences between patients receiving ICD and those who did not receive an ICD. Patients who received an ICD had a significantly lower LVEF after 3 months than patients who did not receive an ICD.
Conclusion: Our data confirm, that the WCD is safe and that the patients, who wear a WCD, have a high adherence. More than half of the patients with reduced LVEF improved their systolic function during WCD therapy, thus obviating the need for ICD implantation. Questions about the effectiveness of the detection algorithm remained open.