Abstract

Incidence of Ventricular Arrhythmias and Shock Therapy in Newly Diagnosed Dilated Cardiomyopathy: Insights from a Contemporary Wearable Cardioverter Defibrillator Prospective Registry

Kelley R. Branch[1], Marye J. Gleva[2], Ulrika M. Birgersdotter-Green[3], Rahul N. Doshi[4], Laura Gustavson[5], Pamela Breske[6], Shirley Zulueta[7], Jeanne E. Poole[8]

BACKGROUND

Current guidelines do not endorse an ICD in newly diagnosed dilated cardiomyopathy (DCM) for 90 days to allow for recovery while maximizing therapy. This study sought to evaluate the incidence of significant ventricular tachyarrhythmia (VTA) in newly diagnosed DCM patients prescribed a wearable cardioverter defibrillator (WCD).

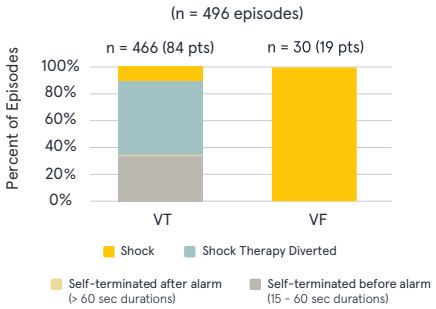
METHODS

A national registry of a novel WCD (ASSURE WCD, Kestra Medical Technologies) was analyzed. The WCD detects and stores VTA episodes and emits an audible alarm if VF persists >20s or VT >60s. Conscious patients may divert shocks by pressing a button.

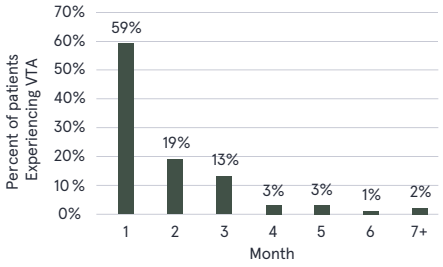
RESULTS

4,713 patients with newly diagnosed DCM and reduced ejection fraction wore the WCD between 11/2021 through 4/2024. Mean age was 65±14 yrs; 32.7% female. High rate VTAs were detected in 100 patients (2.1%) over a median 38 days (IQR 11-82) with 91% ≤3months. Median daily use was 23.2 hrs/day (IQR 16.9-23.9). In total, patients experienced 496 discrete VTAs [94% VT and 6% VF]. Mean time to first VTA was 39±50 days. All VF episodes (N=30) and 10% of VT episodes (N=47) progressed to shock with an overall shock conversion rate of 100%. Of the remaining 90% of VT episodes, 55% were diverted by the patient after alarm (>60s), 34% self-terminated before alarm (<60s) and 1% after alarm (>60s).

VTA Episodes by Method of Conversion



First VTA by Month of WCD Use



Characteristics of Patients with VTA Episodes

Patient Characteristics	n = 100
Age (years), mean ± SD	65 ± 14
Female sex, n (%)	27 (27.0%)
Etiology	
Ischemic cardiomyopathy	45 (45%)
Nonischemic cardiomyopathy	39 (39%)
Unspecified/Unknown cardiomyopathy	16 (16%)
Left Ventricular Ejection Fraction %, mean ± SD	23 ± 9

CONCLUSIONS

Following new DCM diagnosis, a notable risk of VTAs was identified with most but not all occurring within 3 months of WCD use. Most VTAs did not progress to a shock yet represent actionable findings enabling appropriate intervention.

Affiliations and References

[1] Kelley R. Branch: University of Washington School of Medicine, Seattle, WA, United States

[2] Marye J. Gleva: Washington University School of Medicine, Saint Louis, MO, United States

[3] Ulrika M. Birgersdotter-Green: UC San Diego Health Systems, La Jolla, CA, United States.

[4] Rahul N. Doshi: Honor Health and University of Arizona College of Medicine Phoenix, Scottsdale, AZ, United States

[5] Laura Gustavson: Kestra Medical Technologies, Inc., Kirkland, WA, United States.

[6] Pamela Breske: Kestra Medical Technologies, Inc., Kirkland, WA, United States.

[7] Shirley Zulueta: Kestra Medical Technologies, Inc., Kirkland, WA, United States.

[8] Jeanne E. Poole: University of Washington School of Medicine, Seattle, WA, United States

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