Utilization of the Remote Monitoring of Cardiac Implantable Electronic Devices in a Diverse Demographic Cohort: Insights from a Single-Center Observation

Jiyoung Seo[1], Majd Al Deen Alhuarrat[1], Suraj Krishnan[1], Tinatin Saralidze[1], Hyomin Lim[1], Brett Chen[2], David Flomenbaum[2], Ahmad Naser[1], Amrin Kharawala[1], Samuel J. Apple[1], Neal Ferrick[2], Jay Chudow[2], Luigi Di Biase[2], John Fisher[2], Andrew Krumerman[2], and Kevin Ferrick[2]

[1]New York City Health and Hospitals Jacobi
[2]Montefiore Medical Center

July 25, 2023

Abstract

Background Despite its clinical benefits, patient compliance to remote monitoring (RM) of cardiac implantable electronic devices (CIEDs) varies and remains under-studied in diverse populations. **Objective** We sought to evaluate RM compliance, clinical outcomes, and identify demographic and socioeconomic factors affecting RM in a diverse urban population in New York. **Methods** This retrospective cohort study included patients enrolled in CIED RM at Montefiore Medical Center between December 2017 and May 2022. RM compliance was defined as the percentage of days compliant to RM transmission divided by the total prescribed days of RM. Patients were censored when they were lost to follow-up or at the time of death. The cohorts were categorized into low ([?]30%), intermediate (31-69%), and high ([?]70%) RM compliance groups. Statistical analyses were conducted accordingly. **Results** Among 853 patients, median RM compliance was 55%. Age inversely affected compliance (p<0.001), and high compliance was associated with guideline-directed medical therapy (GDMT) usage and implantable cardioverter defibrillator (ICD)/ cardiac resynchronization defibrillator (CRTD) devices. The low-compliance group had a higher mortality rate and fewer regular clinic visits (p<0.001) than high-compliance group. Socioeconomic factors did not significantly impact compliance, while Asians showed higher compliance compared with Whites (OR 3.67; 95% CI 1.08-12.43; p=0.04). Technical issues were the main reason for non-compliance. **Conclusion** We observed suboptimal compliance to RM, which occurred most frequently in older patients. Clinic visit compliance, optimal medical therapy, and lower mortality were associated with higher compliance, whereas insufficient understanding of RM usage was the chief barrier to compliance.

Hosted file

RM manuscript for journal of cardiovascular electrophysiology.docx   available   at   https://authorea.com/users/642935/articles/656585-utilization-of-the-remote-monitoring-of-cardiac-implantable-electronic-devices-in-a-diverse-demographic-cohort-insights-from-a-single-center-observation