Microvolt T-wave alternans testing and risk of death in patients with & without ICDs

Methods

• Patient-level data were gathered from 10 European & Japanese centers where MTWA testing was performed specifically for the purpose of making decisions about primary prevention ICD implantation. Eligible patients included those with left ventricle ejection fraction (LVEF) ≤ 40% and no documented history of ventricular arrhythmias

• Centers were included if the ratio of ICDs implanted in patients who were MTWA negative/positive was >2:1, suggesting that MTWA testing had a significant impact on the decision for ICD implantation. The ultimate decision to implant or not implant an ICD in any given patient was left to the discretion of the treating physician

• From the original 10 centers, two cohorts comprising a total of 167 patients were excluded because the ratio of ICDs implanted in non-negative to negative patients was not >2:1

• The primary endpoint was all-cause mortality at 24 months and the secondary endpoint was arrhythmia/sudden cardiac death at 24 months

• Kaplan-Meier time to first event curves and product-limit estimates were tested with the log-rank test

Results

• Despite a significantly higher percentage of ICDs in negative vs. positive patients (62% vs. 13%), all-cause mortality at 24 months was better among MTWA negative patients and not significantly different than the non-negative group (96.6% vs. 93.8%, p = 0.11)

• Similarly, despite a significantly lower percentage of ICDs, survival free of arrhythmia/sudden cardiac death was significantly better among negative MTWA patients (98.7% vs. 95.8%, p = 0.02)

Conclusions

• We present the first multi-center data in which MTWA was prospectively used to guide ICD implantation

• In this large, real-world cohort, despite a very low prevalence of ICDs, patients with negative MTWA test results experienced very low rates of all-cause (3.4%) and arrhythmia/sudden cardiac (1.3%) death at 2 years. No studies to date have demonstrated a mortality benefit to ICDs in patients with such low event rates

• MTWA negative patient, a majority of whom received ICDs, compared with the MTWA negative patients, had numerically greater all-cause mortality and a statistically significantly greater rate of arrhythmia/sudden cardiac death

• These findings provide further evidence that MTWA negative patients do not benefit from primary prevention ICD therapy

References


Disclosures

Richard J. Cohen (Cambridge Heart Inc., significant)