Abstract: P2873

Novel ICD therapy reduction programming in primary and secondary prevention: reduced mortality and ICD-therapies in a real-life cohort

Authors:
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Topic(s):
Implantable Cardioverter / Defibrillator

Citation:

Background
Implantable cardioverter defibrillator therapy (ICD), with or without combined cardiac resynchronization therapy, has been demonstrated to reduce mortality and morbidity in patients with heart failure. Nevertheless, ICD therapies are associated with increased mortality and morbidity. It was shown that ICD therapy reduction was associated with reduced event-rates.

Aims
It was our goal to examine a novel therapy reduction ICD programming in a real-life-cohort that also includes a notable proportion of patients with secondary prevention ICD indication.

Methods
Our study, based on a real-life register, contained 1013 patients. 609 patients (60%) received ICDs or CRT-Ds for secondary prevention indication. Devices implanted before May 2014 were programmed according to conventional ICD programming (CP), devices implanted since May 2014 have been programmed with a novel programming (NP) (high rate cut-off, longer detection intervals, 4 to 6 ATPs in VT-Zone). The following endpoints were analyzed for time to first event: mortality (247), appropriate therapies (248), appropriate ATPs (172), appropriate shocks (150), inappropriate therapies (102), inappropriate ATPs (49) and shocks (150).

Results
Middle follow-up time was 25.6 months (IQR 14.0 – 36.0 months) and cumulative patient years (PY) were 2165.3. According to Kaplan-Meier-analysis, there was a significant reduction in mortality-rate due NP compared to CP (19.2% vs. 30.2%, p = 0.001) in the whole study population, as well as in patient subgroups with primary and secondary prevention (each p < 0.05). Further, NP was associated with a reduced amount of appropriate (18.8% vs. 49.6%, p < 0.001) and inappropriate therapies (5.2% vs. 21.8%, p < 0.001). In Cox-regression-model, NP showed a significant reduction in mortality (HR = 0.45; p = 0.001) alongside history of diabetes (HR = 1.35), history of chronic kidney disease (HR = 1.76), reduced EF (HR = 1.29) and 2ndpreventional indication (HR = 1.66). Further, NP was associated with a 62% reduction of appropriate and 81% reduction of inappropriate Therapies in multivariate analyses. These results were consistent after stratification for primary and secondary prevention (each p < 0.05) both in Kaplan-Meier-analysis and Cox-regression-model. Regarding primary prevention, NP reduced significantly ATPs (2.7 events per 100 PY (=E/100PY) vs 16.0 E/100PY, p < 0.001) as well as shocks (3.7 E/100PY vs. 8.6 E/100PY, p < 0.05). Further, in secondary prevention NP was linked to a significant reduction of ATPs (11.6 E/100PY vs. 16.5E/100PY, p < 0.05) and shocks (7.6 E/100PY vs. 18.0 E/100PY, p = 0.001).

Conclusion
Novel ICD programming reduced mortality and morbidity due to appropriate or inappropriate ICD therapies independent from ICD indication. For the first time a novel ICD programming with high rate cut-off, longer detection intervals and multiple ATPs showed a benefit regarding mortality especially in patients with secondary prevention ICD indication.
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