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Arrhythmias

PREDICTORS OF ARRHYTHMIC EVENTS IN NON-ISCHEMIC DILATED CARDIOMYOPATHY: A META-ANALYSIS

Poster Contributions
Poster Sessions, Expo North
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Session Title: Ventricular Arrhythmias in Cardiomyopathy
Abstract Category: 7. Arrhythmias: VT
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Background: Patients with nonischemic dilated cardiomyopathy (NDCM) are at increased risk for sudden cardiac death (SCD). No definitive risk stratification test has been established. This study quantifies the performance of the major tests for risk stratification in NDCM.

Methods: Prospective studies in NDCM were identified for eleven risk factors: baroreflex sensitivity (BRS), microvolt T-wave alternans (TWA), signal-averaged ECG, left ventricular ejection fraction (LVEF) and end-diastolic dimension (LVEDD), nonsustained ventricular tachycardia (NSVT), electrophysiology study (EPS), heart rate turbulence (HRT) and variability (HRV), QRS duration, and QRS-T angle. Major arrhythmic outcomes were targeted. Data were summarized separately for each predictor. Publication bias was addressed by the trim-and-fill method.

Results: Forty-five studies enrolling 5,802 patients were summarized. The odds ratios for the 11 tests ranged between 1.5 to 4.7; all but the three autonomic predictors (BRS, HRT, HRV) were statistically significant. TWA was the most sensitive (91%); EPS was the most specific (87%). Evidence of publication bias did not change the qualitative conclusions about test performance.

Conclusion: Abnormalities in cardiac function, depolarization, repolarization, and arrhythmia markers (NSVT, EPS) are risk factors for SCD in NDCM. While any one tool had poor discrimination, future research should target combinations of these tests to inform patient care decisions.

Predictor	Studies	Sensitivity	Specificity	Odds Ratio [95% CI]	p-value
AUTONOMIC					
BRS	2	64.6%	48.9%	1.98 [0.60, 6.59]	0.23
HRT	3	72.7%	52.4%	2.96 [0.77, 11.37]	0.13
HRV	4	55.4%	58.8%	1.72 [0.80, 3.73]	0.13
FUNCTIONAL					
LVEDD	4	66.1%	61.1%	3.47 [1.90, 6.35]	0.014
LVEF	12	71.7%	50.5%	2.87 [2.09, 3.95]	<0.001
ARRHYTHMIA					
EPS	15	28.8%	87.1%	2.49 [1.40, 4.40]	0.004
NSVT	18	64.0%	57.7%	2.92 [2.17, 3.93]	<0.001
DEPOLARIZATION					
QRS Duration/LBBB	10	45.4%	65.9%	1.51 [1.13, 2.01]	0.010
SAECG	11	51.9%	65.3%	2.20 [1.26, 3.85]	0.010
REPOLARIZATION					
QRS-T Angle	1	74.2%	41.1%	2.53 [1.51, 4.23]	<0.001
TWA	12	91.0%	36.2%	4.66 [2.55, 8.53]	<0.001