A Systematic Review and Meta-Analysis of Catheter Ablation Versus Anti-arrhythmic Drugs for Treatment of Ventricular Arrhythmia

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Abstract:

Catheter ablation (CA) and anti-arrhythmic drugs (AADs) minimize implanted cardioverter-defibrillator (ICD) shocks in individuals with ischemic cardiomyopathy and an ICD, while the best strategy is still unknown. CA has been proposed as a potentially effective means of reducing the occurrence of ICD events in a number of studies; however, there were insufficient relevant dates from randomized controlled trials. A meta-analysis and systematic review of randomized controlled trials were carried out to evaluate the efficacy of CA for the prevention of VA in patients with ischemic heart disease. Cardiovascular mortality, an unscheduled hospitalization due to increasing heart failure, appropriate ICD shock, or serious treatment- related consequences comprised the composite primary outcome. AADs were examined in six trials (n = 1564; follow-up = 15 ± 8 months), while CA was evaluated in four trials (n = 682; follow-up = 12 ± 6 months). Both CA (odds ratio (OR) 0.65, 95% confidence interval (CI) 0.47-0.82, p = 0.001) and AADs (OR 0.76, 95% CI 0.32-0.84, p = 0.034) significantly reduced the number of suitable ICD interventions, with no discernible difference between the two treatment approaches. AADs were observed to reduce incorrect ICD interventions (OR 0.38, p = 0.001), but CA did not. During follow-up, there was no correlation seen between reduced mortality and either CA or AAD. When compared to AAD, CA decreased the composite endpoint of cardiovascular death, adequate ICD shock, heart failure-related hospitalization, or severe treatment-related consequences in ICD patients with ischemic cardiomyopathy and symptomatic VT.

Keywords:

Anti-arrhythmic drugs, implantable cardioverter defibrillator, catheter ablation, ventricular arrhythmia, meta-analysis, systematic review.