

INPLASY PROTOCOL

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None.

Association of electrocardiographic patterns with cardiovascular outcomes in hypertrophic cardiomyopathy: a meta-analysis and evidence map

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Review question / Objective: To examine the association between electrocardiographic patterns and cardiovascular outcomes in hypertrophic cardiomyopathy, and to assess the strength of evidence for these associations.

Condition being studied: Hypertrophic cardiomyopathy is a cardiac disease with sudden cardiac death (SCD) and other cardiovascular outcomes, such as atrial fibrillation (AF) and heart failure (HF). To date, many measurements, LGE-CMR, ESC risk scores, have been used for evaluating the risk of this cardiomyopathy. However, compared with electrocardiogram (ECG), these skills lack convenience. Hence, we do a meta-analysis and evidence map to find the Association of electrocardiographic patterns with cardiovascular outcomes in hypertrophic cardiomyopathy.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 December 2020 and was last updated on 24 December 2020 (registration number INPLASY2020120118).

INTRODUCTION

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compared with electrocardiogram (ECG), these skills lack convenience. Hence, we do a meta-analysis and evidence map to find the Association of electrocardiographic patterns with cardiovascular outcomes in hypertrophic cardiomyopathy.

METHODS

Participant or population: Individuals with hypertrophic cardiomyopathy.

Intervention: Individuals with hypertrophic cardiomyopathy.

Comparator: Dynamic changes of electrocardiographic patterns (Long-QT pattern, abnormal ST-T segments and QRS complexes and development of left bundle branch block).

Study designs to be included: Any study design about human beings.

Eligibility criteria: We included these studies if they met the following criteria: they were ECG-related studies and these studies reported at least one of cardiovascular outcomes (mortality, HF, acute myocardial infarction, SCD, AF and coronary disease).

Information sources: Systematic electronic searches in Medline/PubMed and Scopus were performed and we used backward snowballing.

Main outcome(s): Long-term (no less than 1 year) mortality and SCD.

Quality assessment / Risk of bias analysis: We evaluated the methodological quality of the included studies by using the Newcastle-Ottawa scale. Two investigators independently assessed 3 domains: (1) cohort selection, (2) comparability, and (3) outcome. The maximum score for an observational study was 9 points.

Strategy of data synthesis: Pooled Relative Risks (RRs) and their corresponding 95% confidence interval (CI) for categorical variables (dichotomous outcomes) were calculated using a random effects model to

minimize the effect of clinical and methodological heterogeneity among studies, with the inverse variance method. We calculated adjusted or unadjusted RRs with 95% CIs for the overall effect estimate. When an adjusted HR or OR was reported, we considered it equivalent to the relative effect measure reported in other studies that used OR. I² values were used to estimate statistical heterogeneity. I²50% indicated mild, moderate, or substantial heterogeneity, respectively. Publication bias was assessed using a funnel plot and formal testing with Egger's testing.

Subgroup analysis: We did subgroup analysis by ages (>65 years versus ≤65 years), type of hypertrophic cardiomyopathy (apical versus septum), sex (males versus females) and region (North America versus Europe versus Asia and others). When the adjusted data were not being reported, we used raw data in subgroup analysis.

Sensibility analysis: We made sensibility analysis by emitting every study to examine the robustness of primary results.

Country(ies) involved: Mainland China.

Keywords: hypertrophic cardiomyopathy; electrocardiographic patterns; ECG; mortality; meta-analysis.

Contributions of each author:

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