



# Electrocardiogram Findings in Cardiac Cystic Echinococcosis: A Systematic Review and Meta-Analysis

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### Citation:

Beheshti R, Banisefid E, Baghernezhad K, Naseri A, Owaysee Osquee H, Javanshir E. ECG Findings in Cardiac Cystic Echinococcosis: A Systematic Review and Meta-Analysis. *Iranian biomedical journal. Supplementary* (12-2024): 292.

## ABSTRACT

**Introduction:** Human cystic echinococcosis (CE), a hydatid disease, is a tissue infestation endemic in numerous sheep-farming areas, notably Mediterranean countries, the Middle East, South America, and Australia. Cardiac CE is an infrequent expression of Echinococcus infection, representing 0.5% to 2% of the CE cases. This systematic review and meta-analysis aimed to review cardiac CE in electrocardiogram (ECG) findings comprehensively.

**Search Study:** We have included all of the case series studies that presented the ECG findings of cardiac CE. Non-English studies, conference abstracts, review studies, letters, and commentaries were excluded. A systematic search was conducted in PubMed and Embase from inception to March 2022. JBI critical appraisal tool for case series was utilized for quality assessments. Meta-analysis of the proportion of normal sinus rhythm (NSR) among Cardiac CE patients was performed using the CMA3. High heterogeneity was identified by the I<sup>2</sup> statistics of more than 50%, and I<sup>2</sup> statistics below 50% were identified as low heterogeneity. A fixed effect was used in cases of low heterogeneity; otherwise, a random effect was used.

**Results:** Among 3,985 records, 20 studies reported the ECG findings. Based on the quantitative synthesis, the proportion of patients with NSR was 48.3% (9 studies; 95% CI: 38.8%-57.9%; I<sup>2</sup>: 43.99%; *p* value for heterogeneity = 0.075).

**Conclusion and Discussion:** Non-specific signs and ECG changes make cardiac CE a diagnostic challenge. NSR is the most commonly presented ECG finding in cardiac CE, highlighting the method's lack of diagnostic accuracy.

**Keywords:** Echinococcosis, Meta-analysis, Systematic review