

ECG as a predictor for coronary artery involvement in Kawasaki disease

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Introduction:

Kawasaki disease (KD) is a pediatric acute and self-limited multisystemic vasculitis of unknown etiology that mainly affects small and medium-sized arteries, constituting the most common cause of coronary heart disease. Some studies related ECG findings with coronary disease in this population. We aim to analyze whether ECG could be used to predict coronary artery involvement (CAI).

Methods:

In this retrospective study including patients diagnosed with KD (AHA criteria) with available ECG data obtained during the first month of KD diagnosis. Patients with underlying disease that would have altered the baseline ECG were excluded.

12-lead-derived ECG analysis was performed using a hand calibrator, 11 ECG variables and T wave pattern morphologies. The Chi-square test and/or the Fisher exact test were used for the categorical variables. The Mann-Whitney U test was used for comparisons of quantitative variables. Values of $p < 0.05$ were considered statistically significant. Values are expressed as median[IQR].

Results:

50 patients met KD criteria, 19 were excluded and 31 were included for analysis. Age at diagnosis was 36 months. Twelve (38%) had CAI. Patients with CAI had similar ECG results compared to the non-CAI patients, QTc interval (413 [52] vs 420[58]), Tp-e/QTc (0.18[0.05] vs 0.17[0.06]), T amplitude (0.32[0.21] vs 0.3[0.18]) QT interval (280[30] vs 280[80]) Tp-e (80[10] vs 80[20]), Tp-e/QT (0.28[0.05] vs 0.25[0.09]) and T wave duration (160[44] vs 140[40]) were longer but these differences did not reach significance. CAI patients had more IVIG resistance compared to the non-CAI patients (6/12[50%] vs 5/19 [26%]).

Conclusions:

ECG repolarization pattern showed changes during acute and subacute phase of KD. However, no statistically significant correlation was observed between these changes and the coronary artery involvement or IVIG resistance. Future studies encompassing larger series are needed to evaluate whether ECG could be used to predict CAI in KD.