About Entrez
Text Version

Entrez PubMed
Overview
Help | FAQ
Tutorials
New/Noteworthy
E-Utilities

PubMed Services
Journals Database
MeSH Database
Single Citation Matcher
Batch Citation Matcher
Clinical Queries
Special Queries
LinkOut
My NCBI

Related Resources
Order Documents
NLM Mobile
NLM Catalog
NLM Gateway
TOXNET
Consumer Health
Clinical Alerts
ClinicalTrials.gov
PubMed Central

1: Circulation. 2006 Mar 21;113(11):1385-92. Epub 2006 Mar 13.

Epinephrine QT stress testing in the evaluation of congenital long-QT syndrome: diagnostic accuracy of the paradoxical QT response.

Vyas H, **Hejlik J**, **Ackerman MJ**.

Division of Pediatric Cardiology, Department of Pediatric and Adolescent Medicine, Mayo Clinic College of Medicine, Rochester, MN, USA.

BACKGROUND: A paradoxical increase in the uncorrected QT interval during infusion of low-dose epinephrine appears pathognomonic for type 1 long-QT syndrome (LQT1). We sought to determine the diagnostic accuracy of this response among patients referred for clinical evaluation of congenital long-QT syndrome (LQTS). METHODS AND RESULTS: From 1999 to 2002, 147 genotyped patients (125 untreated and 22 undergoing beta-blocker therapy) had an epinephrine QT stress test that involved a 25-minute infusion protocol (0.025 to 0.3 microg.kg(-1).min(-1)). A 12-lead ECG was monitored continuously, and repolarization parameters were measured. The sensitivity, specificity, and positive and negative predictive values for the paradoxical QT response (defined as a > or =30-ms increase in QT during infusion of < or =0.1 microg.kg(-1).min(-1) epinephrine) was determined. The 125 untreated patients (44 genotype negative, 40 LQT1, 30 LQT2, and 11 LQT3) constituted the primary analysis. The median baseline corrected QT intervals (QTc) were 444 ms (gene negative), 456 ms (LQT1), 486 ms (LQT2), and 473 ms (LQT3). The median change in QT interval during low-dose epinephrine infusion was -23 ms in the gene-negative group, 78 ms in LQT1, -4 ms in LQT2, and -58 ms in LQT3. The paradoxical QT response was observed in 37 (92%) of 40 patients with LQT1 compared with 18% (gene-negative), 13% (LQT2), and 0% (LQT3; P<0.0001) of the remaining patients. Overall, the paradoxical QT response had a sensitivity of 92.5%, specificity of 86%, positive predictive value of 76%, and negative predictive value of 96% for LQT1 status. Secondary analysis of the subset undergoing beta-blocker therapy indicated inferior diagnostic utility in this setting. CONCLUSIONS: The epinephrine QT stress test can unmask concealed type 1 LQTS with a high level of accuracy.

PMID: 16534005 [PubMed - indexed for MEDLINE]

Related Links

Epinephrine-induced QT interval prolongation: a gene-specific paradoxical response in congenital long QT syndrome. [Mayo Clin Proc. 2002]

Diagnostic value of epinephrine test for genotyping LQT1, LQT2, and LQT3 forms of congenital long QT syndrome. [Heart Rhythm. 2004]

Gene-specific response of dynamic ventricular repolarization to sympathetic stimulation in LQT1, LQT2 and LQT3 forms of congenital long QT syndrome. [Eur Heart J. 2002]

Sympathetic stimulation produces a greater increase in both transmural and spatial dispersion of repolarization in LQT1 than LQT2 forms of congenital long QT syndrome. [J Am Coll Cardiol. 2001]

Sinus node function and ventricular repolarization during exercise stress test in long QT syndrome patients with KvLQT1 and HERG potassium channel defects. [J Am Coll Cardiol. 1999]

See all Related Articles...