

Automated reporting of QT interval and other issues in the channelopathies

The recommendation that a 12-lead ECG should be performed on every patient presenting with transient loss of consciousness¹ irrespective of whether the provisional diagnosis is syncope or epilepsy is a sound one given the fact that convulsive syncope can simulate epilepsy.¹ An important caveat, however, is that, when the ECG is performed in settings such as the accident and emergency department, cognisance should be taken of the fact that “standard automated reporting of QT interval on modern

ECG equipment can be erroneous², as shown by missed diagnosis of the long QT syndrome, with consequent fatal outcome, when the QT interval was pronounced as normal in the automated report, but was subsequently found to be prolonged when evaluated manually.² In the presence of a normal QT interval, potential candidates for convulsive syncope include patients with Brugada syndrome,³ characterised in the vast majority of cases by an abnormal resting (ie, interictal) ECG,⁴ and patients with catecholaminergic polymorphic ventricular tachycardia (CPVT), in whom the resting (ie, interictal) ECG is typically normal.⁵ In Brugada syndrome syncope typically occurs at rest, and is sometimes precipitated by a febrile illness,^{3,4} and the ictal ECG then manifests ventricular tachycardia, which may either be polymorphic or monomorphic.^{3,4}

Alternatively, sudden nocturnal death syndrome may be the only manifestation of Brugada syndrome.⁶ The typical signature on the interictal ECG is the presence, in the right precordial leads, of QRS complexes simulating right bundle branch block with superimposed 'coved' ST segments in some cases (type 1 BS) or 'saddleback' ST segments (type 2 BS) in others.⁴ Very rarely, even in a patient with previous ventricular tachycardia, the resting ECG may be completely normal.⁷ By contrast, in CPVT, an entirely normal resting ECG is the rule, and syncope is precipitated either by exercise or by emotional stress,⁸ and treadmill exercise testing is required to reveal ECG stigmata such as bidirectional ventricular tachycardia or polymorphic ventricular tachycardia.⁹

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