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Brief summaries of the latest clinical findings

Cardiology

QT Alert Helps Save Lives

QT prolongation is a "potent predictor of mortality," say Mayo Clinic researchers from Rochester, Minnesota, and knowing who is at high risk of mortality can help physicians change treatment in time to save the patient.

The researchers reported on their institution-wide computer-based system, which screened all electrocardiograms (ECGs) and alerted the patient's physician when the QTc was ≥ 500 ms. During the 7-month follow-up period, 86,107 ECGs were performed on 52,579 patients. Alerts were sent for 1,145 patients (2%). Nearly 700 physicians (> 20% of the faculty across all disciplines) received ≥ 1 QT alert.

Of the 470 patients with isolated QTc of ≥ 500 ms, 87 (19%) died—a nearly 4-fold higher risk of death, compared with those with QTc of < 500 ms. Diabetes was the most common single factor for a QT-prolonging diagnosis.

The patient's pro-QTc score was a significant predictor of mortality ($P < .001$), with medications and electrolyte abnormalities the most important components. In fact, the researchers say, if the QTc was ≥ 500 ms and the patient had ≥ 4 QT-prolonging medications or QT-prolonging electrolyte abnormalities, mortality was 40%. As an example, the researchers describe an "emerging QT perfect storm" in which a patient with electrolyte abnormalities who is receiving an antidepressant might then be treated for an infection with an antibiotic with QT-prolonging potential. Most patients were on at least 1 QT-prolonging drug; some patients were on as many as 5 QT-prolonging drugs. (The researchers point out that sudden death secondary to drug-induced QT prolongation and torsade de pointes ventricular arrhythmias is the most common reason for withdrawal of medications after Food and Drug Administration approval.)

The QT alert system has lifesaving potential, the researchers believe. Each physician receiving an alert is guided to the "AskMayoExpert" website with information about the risks of QT prolongation and risk-reducing interventions. Awareness of vulnerable patients means treatment and medications can be reassessed sooner.

Source: Haugaa KH, Bos JM, Tarrell RF, Morlan BW, Caraballo PJ, Ackerman MJ. *Mayo Clin Proc.* 2013;88(4):315-325. doi: 10.1016/j.mayocp.2013.01.013.

Hematology

An Underrecognized Complication of Sickle Cell Disease

Sickle cell disease has many symptoms, but it also comes with life-threatening complications, such as pulmonary hypertension and stroke. Microvascular thrombosis and small-vessel arterial thrombosis contribute, but the mechanism of action is still unknown. Research findings are conflicting—some studies have found that patients with sickle cell disease do not have a greater risk of venous embolism; whereas autopsy studies have suggested as many as 50% of patients with sickle cell disease have pulmonary emboli. Nonetheless, researchers at Johns Hopkins University in Baltimore, Maryland, say venous thromboembolism (VTE) is not generally recognized as a common comorbidity in patients with sickle cell. Moreover, because sudden death is so prevalent among patients with sickle cell disease, VTE could be an unrecognized cause of morbidity and mortality.

The researchers, on the hypothesis that VTE is more common in sickle cell disease than previously reported, conducted a retrospective analysis of 404 patients in the Sickle Cell Center for Adults at Johns Hopkins.

One-quarter of all patients with sickle cell disease had a history of VTE. The median age at diagnosis of first venous thrombosis was 30 years, significantly younger, the researchers note, than the average age for the general population (65 years) but comparable with the age in families with high-risk thrombophilia.

Catheters were a major trigger for venous thrombosis, but more often in patients with sickle cell anemia ($SS/S\beta^0$) genotypes. This finding is consistent with the high usage of catheters in this patient group, the researchers say. Noncatheter-related VTE was significantly more common in patients with sickle variant genotypes ($P = .009$). The researchers suggest that increased whole blood viscosity may underlie this genotypic difference.

Although the study lacked complete data on traditional risk factors for all the case patients, the researchers were able to verify that at least 33% of patients with noncatheter-related VTE experienced an idiopathic event. Moreover, a history of noncatheter-related VTE was an independent risk factor of death, which implies that hypercoagulability may lead to death in patients with sickle cell disease.

Their findings "underscore the potent thrombophilic stimulus associated with sickle cell disease," the researchers say. The findings also suggest that sickle cell disease is an independent risk factor for VTE.

Source: Naik RP, Streiff MB, Haywood C Jr, Nelson JA, Lanzkron S. *Am J Med.* 2013;126(5):443-449. doi: 10.1016/j.amjmed.2012.12.016.