

Researchers identify link between autoimmune diseases, medications and Long QT syndrome

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Mohamed Boutjdir, PhD, professor of medicine, cell biology, and physiology and pharmacology at SUNY Downstate Medical Center, has led a study with international collaborators identifying the mechanism by which patients with various autoimmune and connective tissue disorders may be at risk for life-threatening cardiac events if they take certain anti-histamine or anti-depressant medications. Dr. Boutjdir is also director of the Cardiac Research Program at VA New York Harbor Healthcare System.

The researchers published their findings in the online edition of the American Heart Association Journal *Circulation* in an article titled, "Pathogenesis of the Novel Autoimmune-Associated Long QT Syndrome."

The team established for the first time the molecular and functional mechanism by which adult patients with autoimmune diseases, particularly systemic lupus erythematosus, Sjogren's syndrome, and other connective tissue diseases (CTD), including mixed CTD, undifferentiated CTD, polymyositis/dermatomyositis, systemic sclerosis, and rheumatoid arthritis, develop abnormal electrical activity on their electrocardiogram (ECG) known as Long QT syndrome or QT interval prolongation.

Long QT prolongation can be inherited due to abnormal genes or acquired, often due to medication side effects, all of which affect the heartbeat cycle in a way that increases the risk of irregular heartbeat episodes that originate from the ventricles. These episodes may lead to palpitations, fainting, and sudden death due to ventricular fibrillation.

"We discovered that antibodies called anti-SSA/Ro antibodies picked up in laboratory testing and found in adult patients with connective tissue diseases actually block a specific cardiac channel (called the hERG channel), preventing potassium ions from going out of the cell and resulting in abnormal ECG (Long QT). The concern is that patients with these 'bad' antibodies can be at risk for even worse heartbeat abnormalities if their electrolytes are abnormal or if they are taking medications such as some anti-histamine or anti-depressant drugs known to cause Long QT on their own," explains Dr. Boutjdir.

"Accordingly, we recommended that adult patients with anti-SSA/Ro antibodies may benefit from routine ECG screening and that those patients with the type of heartbeat irregularities related to Long QT syndrome should receive counseling about taking drugs that may increase the risk for life-threatening arrhythmias. Moreover, we recommend that such screening and counseling be routine care for these patients," he added.

Source:

SUNY Downstate Medical Center
