Study re-examines sports restrictions for children with heart rhythm disorder

April 20 2015

Sports participation may be safer than previously thought for children with the heart rhythm disorder long QT syndrome, and authors of a new study in *JACC: Clinical Electrophysiology* say restrictions should be eased to allow appropriately treated children with the condition to participate more in recreational and competitive sports.

"Re-examining participation rules is important because the physiologic benefits of exercise at all ages have been emphasized repeatedly and promoted as a national public health agenda," said Peter Aziz, M.D., lead author of the study and a pediatric cardiologist at Cleveland Clinic Children's in Cleveland. "The enhanced self-confidence, sense of psychological, physical and social well-being, and improved overall quality of life that sports participation brings to children and adolescents is equally important."

It is estimated that 1 in every 2,500 people have long QT syndrome, but many never have symptoms and go undiagnosed. The syndrome can cause fast, chaotic heartbeats that lead to sudden fainting spells, seizures or sudden death. The most common symptom is sudden, temporary loss of consciousness, which usually occurs without warning and is often triggered by exertion. It can be diagnosed early with an electrocardiogram and most patients can remain symptom free by taking beta blockers daily. Some long QT syndrome patients, especially those who cannot take beta blockers or who are at especially high risk, have implantable cardioverter defibrillators (ICD)—devices connected to the heart to detect irregular heartbeats and provide an electrical shock to

correct it.

Recommendations for sports participation are included in a document known as the Bethesda Conference report, which was updated in 2005 to allow all patients with the heart rhythm disorder to participate in the "safe six" sports: billiards, bowling, cricket, curling, golf and riflery. The document did not specifically allow asymptomatic long QT syndrome patients who are adequately treated with medication to participate in more strenuous sports. Prior to 2005, it was recommended patients with the syndrome avoid all sports.

Researchers at the Children's Hospital of Philadelphia said many parents of children with long QT syndrome have allowed their children to play sports after discussion with a pediatric electrophysiologist. In turn, the hospital's clinical practice has evolved over time to allow sports participation in some patients under the surveillance of an expert clinician.

For this study, the authors reviewed the records of 103 patients, ages 4 to 21, who were seen at Children's Hospital of Philadelphia between 1998 and 2003 for symptoms of long QT syndrome that occurred during sports participation to determine the prevalence of cardiac events or deaths. All patients were treated with beta blockers, though one patient quit taking the medication and another could not tolerate it.

Twenty-six patients in the study participated in competitive sports and 77 participated in recreational sports. The patients were followed for an average of seven years and no cardiac events or deaths were observed during sports participation in treated patients. Five appropriate ICD shocks occurred in two patients, but none were related to sports participation.

"Given the changing diagnostic trends, it may be clinically beneficial to

re-examine sports recommendations that were made based on data from an earlier era," Aziz said. "In addition to taking medications regularly and openly communicating with doctors, we recommend long QT syndrome patients who do not have an ICD always have access to an automated external defibrillator. Many of our patients have purchased personal AEDs that they carry around with them."

Researchers said their patient population skewed toward asymptomatic patients, but this better reflects the general population as many asymptomatic patients are diagnosed with long QT syndrome through liberal ECG testing and genetic screening. Limitations include the study being limited to a single institution; majority of patients being engaged in recreational sports and less physically demanding competitive sports, which may reflect a lower level of exertion; and only including patients who were actively participating in sports, which may show some survival or selection bias.

In an accompanying editorial, Michael J. Ackerman, M.D., Ph.D., professor of medicine, pediatrics and pharmacology and director of the Long QT Syndrome Clinic at Mayo Clinic in Rochester, Minnesota, said decisions to play sports should be determined by a long QT syndrome expert in conjunction with the athlete and his or her family so that they can make a well-informed decision knowing all the risks.

"There must be a healthy dose of reverence and fear regarding the possibility of a long QT syndrome-triggered event, including the potential for a fatal one, to occur during sporting activities both competitive and recreational," Ackerman said. "The question has never been whether aerobic activity for this group of patients is a potential risk but whether the risk can be minimized in other ways besides eliminating sports. We have concluded that the answer is yes."

This study is being published in the first issue of *JACC: Clinical*

Electrophysiology, which goes online April 20 at 2 p.m. ET. The new journal will be published bimonthly and feature original research and review articles on cardiac rhythm disorders.

Provided by American College of Cardiology