Sudden Death in Young Athletes

Hypertrophic Cardiomyopathy – a Silent Killer

Apr 14, 2009 Terry Zeigler

> Because there typically are no warning signs, the focus needs to be on undertaking comprehensive family medical histories for all athletes.

A study published in the *Journal of the American Medical Association* (1996) analyzed 158 sudden deaths in young athletes (ages 12 – 40) occurring between 1985 and 1995. A thorough investigation was undertaken including interviewing the families, witnesses, and coaches of the athletes who had died. An analysis of the postmortem anatomic, microscopic, and toxicological data was also undertaken.

The purpose of this study was to develop profiles of the athletes who had died. Twenty-four of the deaths were determined to be caused by non-cardiovascular events leaving 134 deaths caused by some type of heart related abnormality. Ninety percent of the athletes collapsed during or immediately after competition.

According to the report, the most common structural cardiovascular disease identified at autopsy was hypertrophic cardiomyopathy (48 athletes [36%]) (B. J. Maron, J. Shirani, L. C. Poliac, R. Mathenge, W. C. Roberts and F. O. Mueller, July, 1996). Hypertrophic cardiomyopathy causes heart arrhythmia (irregular heart beat).

Hypertrophic Cardiomyopathy Defined

Hypertrophic cardiomyopathy is a congenital heart disease that causes thickening in parts of the heart muscle (National Institute of Health, 2008). The heart is a complex muscle divided into four chambers. This disease causes different areas of the heart muscle to thicken making it more difficult for the blood to be pumped from chamber to chamber.

Unfortunately, some patients may experience no symptoms. With no symptoms, there is no warning of a potentially lethal problem. “The first symptom of hypertrophic cardiomyopathy among many young patients is sudden collapse and possible death” (National Institute of

Health, 2008).

Symptoms that may be present and should raise immediate concern for medical referral include:

- Shortness of breath
- Chest pain
- Dizziness
- Fainting
- Light Headedness

Detailed Family History Should be Part of Pre-participation Screening

Because hypertrophic cardiomyopathy is genetically passed on from parent to child, there may be a family history of cardiac death before the age of 50 in these families. Because of this, physicians are trained to carefully review family histories during medical screenings looking for any cardiac deaths before the age of 50.

If a physician discovers that there was a cardiac-related death within the athlete's family before the age of 50, the athlete should then be referred to a cardiologist for further evaluation. Advance cardiac tests can be performed to diagnose this condition. Although people diagnosed with hypertrophic cardiomyopathy have a higher risk of sudden death than the average population, this condition can be treated.

Preparticipation medical screenings including detailed family histories may help identify athletes who may be at risk for hypertrophic cardiomyopathy. A preparticipation medical screening alone will not identify this heart abnormality, because advance cardiac tests are not performed during routine athletic screenings.

Because hypertrophic cardiomyopathy is a leading cause of sudden death in young athletes and the disease typically does not have any symptoms, comprehensive medical histories can be the window physicians need to diagnose and treat this potentially lethal disease.