

Hypertrophic cardiomyopathy under-appreciated cause of sudden cardiac death in male minority athletes

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Sudden deaths in young, seemingly healthy competitive athletes are tragic events, often with wide media coverage and high public visibility. There is substantial interest in establishing the cause of these deaths and the roles that race and gender may play. In a new study published in *The American Journal of Medicine*, investigators report that more than one-third of recorded cardiovascular deaths were caused by hypertrophic cardiomyopathy, the majority in young male minority athletes. Sudden deaths due to genetic and/or congenital heart diseases are uncommon in females, but relatively common in African-American and other minorities compared to whites.

Researchers accessed the U.S. National Registry of Sudden Death in Athletes, 1980-2011 to define the epidemiology and causes of sudden deaths in competitive athletes. More than 2,400 deaths were identified in young athletes aged between 13 and 25 years engaged in 29 different sports. Over 840 athletes had cardiovascular diagnoses confirmed at autopsy.

"Utilizing this registry, we have established that hypertrophic cardiomyopathy is the leading cause of sudden cardiac death in male athletes and is an under-appreciated cause of [sudden death](#) in male African-American and minority athletes, but is a rare cause of death in female athletes," explained lead investigator Barry J. Maron, MD, Tufts Medical Center, HCM Institute, Division of Cardiology, Boston, MA.

The investigators found that:

- Male [athletes](#) were 6.5 times more likely to die from a sudden cardiac event than females.
- More than one-third of deaths were caused by hypertrophic cardiomyopathy, which accounted for nearly 40% of male sudden deaths and was almost four times more common in males than females.
- Cardiovascular death rate among African-Americans and other minorities exceeded whites almost five-fold.
- Among cases of hypertrophic cardiomyopathy, more than 50% occurred in minority males, but only 1% in minority females.
- Sudden deaths among male and female basketball players were three times more likely to be African-American and minorities than white.
- Congenital coronary artery anomalies, arrhythmogenic right ventricular cardiomyopathy, and clinically diagnosed long-QT syndrome were more frequent among females.
- Structurally normal hearts comprised less than 5% of athlete deaths.

Hypertrophic cardiomyopathy is a disease of the myocardium (heart muscle) in which a portion of the myocardium is hypertrophied (thickened) without any obvious cause, creating functional impairment of the cardiac muscle. It is a significant cause of sudden unexpected cardiac death in any age group and as a cause of disabling cardiac symptoms. There are often no symptoms beforehand.

"These observations underscore the potential value of the American Heart Association/American College of Cardiology recommended preparticipation screening in minority and other communities, particularly for the identification of hypertrophic cardiomyopathy," Dr. Maron added.

More information: "Demographics and Epidemiology of Sudden Deaths in Young Competitive Athletes: From the United States National Registry," by Barry J. Maron, MD, Tammy S. Haas, RN, Aneesha Ahluwalia, Caleb J Murphy, BS, and Ross F Garberich, MSc. This article appears online in advance of *The American Journal of Medicine*, Volume 129, Issue 10 (October 2016)

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