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Young black athletes with sickle cell trait might be susceptible to sudden death

The sickle cell trait could be a cause—albeit rare—of sudden death in young African-American competitive athletes, most commonly during football training, according to a scientific poster that will be presented at the American College of Cardiology (ACC) Scientific Sessions, April 1-3, in New Orleans.

The sickle cell trait (SCT), which affects approximately 8 percent of African-Americans in the U.S., has been associated with sudden death in military recruits undergoing vigorous exercise. Due to the potential hypothesis that SCT may also cause sudden death in young highly trained athletes during physical activity, the National Collegiate Athletic Association (NCAA) has recently made screening of athletes for SCT mandatory for all Division I athletes prior to their participation in college athletics.

However, Kevin M. Harris, MD, co-director of the Acute Aortic Dissection Program and director of the echocardiography laboratory at the Minneapolis Heart Institute® at Abbott Northwestern Hospital in Minneapolis, pointed out that there are little data available documenting cases of SCT-related sudden death in athletes.

"Originally, the sickle cell trait was considered a benign condition," said Harris, who is the study's lead author. "However, studies began to demonstrate that in extreme physical situations, such as military recruit training, some individuals with SCT can be at risk for dying suddenly. Then, we began to see the same occurrences in athletes."

Therefore, Harris and colleagues accessed the 30-year U.S. National Registry of Sudden Death in Athletes, which is maintained by the Minneapolis Heart Institute Foundation, in order to determine the frequency and profile of SCT deaths.

Of the 2,387 deaths recorded in the registry, 22 of the athletes who died had SCT—15 of whom SCT was considered the primary cause of death (or approximately 1 percent). Of those who died, the athletes were approximately 18.5 years of age, all were African-American and 20 were male.

All the athletes died during physical exertion including practice (21 individual) or a game (one individual). Of the 22 SCT deaths, 18 were engaged in football, three in basketball and one in track. Eleven athletes incurred rhabdomyolysis as a complication of SCT.

Interestingly, only one of these events occurred at high altitude, even though it has been considered a predictor of sudden death among individuals with SCT. However, environmental conditions, such as heat or humidity and dehydration could not be excluded as contributing factors, underscoring the importance of "water breaks for young athletes," Harris said. "Particularly, if an athlete is identified as having SCT, proper precautions need to be taken, and the coaching staff should be made aware."

"These data also underscore the prudence of recent initiatives for pre-participation screening to prospectively identify sickle cell trait in athletes," the study authors concluded.

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