ECG's Role in Athletic Screening Protocol Debated

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Contributing Writer

A national athletic screening program appears to have cut the rate of sudden death by 89% among adolescent and young adult athletes in Italy, according to Domenico Corrado, Ph.D., of the University of Padua, and his associates.

However, U.S. physicians cautioned that the less formal screening programs that are used in this country, and that do not include routine ECGs, may be as effective as the more involved Italian program. They warned against becoming "enamored" of elaborate screening approaches that may overestimate the benefits and minimize the risks and costs of screening.

In 1982, Italian law mandated that all competitive athletes aged 12-35 years undergo preparticipation screening for potentially lethal cardiovascular abnormalities. The CV screening includes a physical exam, family and personal history, and a 12-lead ECG.

Dr. Corrado and his associates analyzed the annual rates of sudden cardiovascular death from 1979 to 2004 in one region of the country with nearly 4,400,000 residents.

The investigators found that the rate decreased after the screening program was initiated, and that the decrease has persisted to the present. Of 42,386 screened athletes, 3,914 (9%) required additional cardiovascular testing and 879 (2%) of those were prohibited from participating in athletics.

The annual rate of sudden cardiac death in young athletes was 3.6 per 100,000 person-years in 1979 and 4.0 per 100,000 person-years in 1981. The rate then dropped precipitously to 1.5 per 100,000 person-years over the next 4 years after the screening program was introduced, and it has decreased more slowly since then to a low of 0.43 per 100,000 person-years in 2004, they reported (JAMA 2006;296:1593-1601).

The investigators attributed most of the reduced incidence to fewer deaths from cardiomyopathies.

This decline was accompanied by an increase—from 4.4% to 9.4%—in the proportion of young athletes who were identified by screening and disqualified from participating in competitive sports because of cardiomyopathies. No deaths occurred among these disqualified athletes, "suggesting that screening may prevent sudden death," Dr. Corrado and his associates said.

The screening program appears to have cut the rate of sudden death by 89% in young athletes in Italy.

DR. CORRADO

In contrast, the trend for sudden CV death among unscreened, nonathletic people of the same age was relatively unchanged during the same time period, equivalent to a mortality of 0.79 per 100,000 person-years.

The findings "suggest that screening athletes for cardiomyopathies is a life-saving strategy and that 12-lead ECG is a sensitive and powerful [screening] tool," they noted.

In an editorial comment that accompanied this report, Dr. Paul D. Thompson of Hartford (Conn.) Hospital and Dr. Benjamin D. Levine of the University of Texas, Dallas, wrote, "Although these results are provocative, they do not definitively prove the value of screening or establish the importance of routine ECGs in the screening process.

"This study was not a controlled comparison of the screening vs. nonscreening of athletes, but rather is a population-based observational study," they noted (JAMA 2006;296:1648-50).

Moreover, the apparent decline in sudden cardiovascular death may reflect an unusually high initial death rate rather than a true decrease.

The lowest death rate reported in this study after the screening program was well established is equivalent to death rates among high school and college athletes in the United States in 1983-1993, the best data available for nontraumatic deaths in U.S. athletes.

This suggests that the less formal U.S. screening process may be as effective as the more involved Italian program, Dr. Thompson and Dr. Levine said. ■