Sudden Death Among Soldiers Often Caused by Exercise and An Identifiable Cardiac Abnormality

Research demonstrates current health screening measures do not identify cardiac abnormalities; other preventative measures need to be taken to prevent sudden death.

Boston — Medical data among military recruits is extensive given the rigorous physical health screening provided by the U.S. military. Researchers at Brigham and Women’s Hospital (BWH), in an effort to better understand why young and apparently healthy individuals experience sudden death, looked at medical records and autopsy reports of military personnel who experienced this tragedy. The researchers found that among those who experienced nontraumatic sudden deaths, most of them occurred during exercise. In addition, researchers found that more than half of the deaths were related to one of many potential identifiable cardiac abnormalities, which, despite military screening methods that in some cases included an electrocardiogram or echocardiogram, may not have been detected. Also, a little less than half of the deaths remained unexplained, suggesting potential abnormalities with the hearts electrical system as the cause. Details of this research are published in the December 7, 2004 issue of Annals of Internal Medicine.

According to the study’s lead author BWH’s Robert E. Eckart, DO, “Fortunately, sudden death in military recruits is rare. We had assumed that most would be due to a structural heart abnormality, something that might be detected by physical examination. However, many are not associated with any structural heart problem and would not be identified by the current method of health screening that includes a physical exam. The findings suggest genetic abnormalities that affect the heart’s electrical system are likely to be a significant cause of death. Many of these disorders run in families and can be inherited, such that the victims’ relatives may be at risk for sudden death. To help us prevent sudden death in the future, in both young people and potentially their family members, we are continuing studies at BWH to better define these causes.”

Researchers reviewed cases of 126 nontraumatic sudden deaths that occurred among 6.3 million military recruits, male and female, age 18 to 35 years from 1977 through 2001. After examining medical records of the 126 cases, researchers found that in most individuals, there were no structural abnormalities of the heart that might have shown up during physical examination or an echocardiogram. Instead, researchers found that 86 percent of the sudden death incidents were related to exercise. In addition, researchers found after autopsy that while 51 percent of the deaths were caused by one of many potential cardiac abnormalities; the single leading cause of sudden death in this population was a structurally normal heart, so-called “idiopathic sudden death.” The cardiac abnormalities identified included most commonly, coronary artery abnormalities; followed by inflammation of the heart muscle and, an enlarged muscular wall of the heart that can block normal blood flow during heavy exercise.

“The best noninvasive test we currently have to identify structural defects related to sudden death is an echocardiogram,” Eckart said. “However, we know now that this test would not show a cardiac abnormality in many of the people at risk as the leading cause of death was associated with a structurally normal heart. Whether genetic testing would identify some of these people at risk is not known, but warrants study.”

Sudden cardiac death (SCD), or cardiac arrest, is the sudden, abrupt loss of heart function in a person who may or may not have diagnosed heart disease. Sudden cardiac death is a major health problem, causing about 340,000 deaths each year among U.S. adults, before they reach a hospital or emergency room. In older adults, these deaths can often be attributed to coronary artery disease.

Please contact BWH Media Relations for more information at (617) 534-1600 or BWHMediaRelations@partners.org

Brigham and Women’s Hospital is a 747-bed nonprofit teaching affiliate of Harvard Medical School and a founding member of Partners HealthCare System, an integrated health care delivery network. BWH is committed to excellence in patient care with expertise in virtually every specialty of medicine and surgery. The BWH medical preeminence dates back to 1832 and today that rich history in clinical care is coupled with its national leadership in quality improvement and patient safety initiatives, dedication to educating and training health care professionals, and strength in biomedical research. With $370M in funding and more than 500 research scientists, BWH is an acclaimed leader in clinical, basic and epidemiological investigation - including the landmark Nurses Health Study, Physicians Health Studies, and the Women’s Health Initiative. For more information about BWH, please visit: www.brighamandwomens.org.