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ETIOLOGIES OF SUDDEN CARDIAC DEATH ASSOCIATED WITH PHYSICAL EXERTION IN THE UNITED STATES MILITARY

Poster Contributions

Poster Hall B1

Sunday, March 15, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Sports, Exercise and Arrhythmias

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Authors: *Samuel O. Jones, Darlene Smallman, Bryant J. Webber, Edward L. Mazuchowski, Hugh Coke, Ann I. Scher, Joyce A. Cantrell, San Antonio Military Medical Center, San Antonio, TX, USA, Uniformed Services University of the Health Sciences, Bethesda, MD, USA*

Background: The leading cause of Sudden Cardiac Death (SCD) in the young is often reported as hypertrophic cardiomyopathy (HCM), but some reports differ. The U.S. military system provides excellent data for SCD surveillance given complete capture of all deaths, well-defined population, comprehensive electronic medical record, and accessible surveillance systems. This study evaluated the etiologies of SCD with exertion (SDC/E) in the U.S. military from Jan 1, 2005-Dec 31, 2010.

Methods: Perimortem and other relevant data were collected from the Armed Forces Medical Examiner Tracking System (surveillance system of service member fatalities that includes autopsy reports, death certificates, and official investigations with witness interviews). If there was no pathology observed at autopsy or other records to definitively explain the sudden death, the case was classified as idiopathic.

Results: The AFMETS query yielded 200 sudden deaths coded as being associated with physical activity and met case-defining criteria, with autopsies available for review in 95% of all cases. Atherosclerotic cardiovascular disease was the leading cause of death overall (55%). The etiologies are listed in Table 1.

Conclusion: Atherosclerotic cardiovascular disease was the leading cause of death overall (55%) and in the ≥ 35 year age group (78%), similar to reported civilian data. However, the leading cause of sudden cardiac death in the < 35 year age group was idiopathic SCD, and not cardiomyopathy.

Table 1. Causes of Death for Cases of Sudden Cardiac Death with Exertion in the US Military

	Cases N=200	Age <35 years n=75	Age ≥ 35 years n=125
Atherosclerotic CVD	110 (55.0%)	12 (16.0%)	98 (78.4%)
Idiopathic SCD with Physical Exertion	30 (15.0%)	23 (30.7%)	7 (5.6%)
Anomalous Coronary Arteries	19 (9.5%)	16 (21.3%)	3 (2.4%)
Cardiomegaly/ Cardiomyopathy*	18 (9.0%)	12 (16.0%)	6 (4.8%)
HCM	7 (3.5%)	4 (5.3%)	3 (2.4%)
Hypertensive CVD	5 (2.5%)	2 (2.7%)	3 (2.4%)
Myocarditis	5 (2.5%)	3 (4.0%)	2 (1.6%)
Valvular Disorder	3 (1.5%)	2 (2.7%)	1 (0.8%)
ARVC	3 (1.5%)	1 (1.3%)	2 (1.6%)

*excluding HCM
CVD= cardiovascular disease; SCD= sudden cardiac death; HCM= hypertrophic cardiomyopathy; ARVC= arrhythmogenic right ventricular cardiomyopathy