



Pathology Biology Section – 2007

G12 The Epidemiology of Sudden Cardiac Death in Young Decedent Medical Examiner Cases

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After attending this presentation, attendees will understand the epidemiology of sudden cardiac death cases (SCD) presenting to a large medical examiner's office over a five year time span (2001-2005) resulting in increased understanding of the etiology of this cause of death.

This presentation will impact the forensic community and/or humanity by providing detailed medical and social history information recovered from a population of young individuals who died from sudden cardiac death. The resulting database is large enough to provide statistically significant data that can be used as a basis for further research. Dissemination of this information may support an emphasis on innovative screening and prevention practices targeting youth, ultimately contributing to decreased mortality from SCD in this at-risk segment of the United States population.

Sudden Cardiac Death (SCD) is the leading cause of natural death each year in the United States. This poster presentation will inform attendees regarding the epidemiology of SCD cases presenting to a large medical examiner's office over a five year time span (2001-2005), resulting in increased understanding of the etiology of this cause of death. SCD is often the result of untreated rapid ventricular tachycardia or ventricular fibrillation but it may be due to a variety of different conditions, including but not limited to acute myocardial infarction, coronary artery disease, cardiomyopathies, myocarditis, valvular heart disease, conduction abnormalities and drug toxicity (prescription and recreational).

SCD is a significant public health problem, the basis of which will be more effectively addressed through building a clear and accurate picture of young SCD decedents, thereby broadening innovative intervention projects to include previously underserved at-risk segments of the population.

A retrospective record review was conducted at the Harris County Medical Examiner's Office in Houston, Texas (HCME) that identified natural deaths reported to the HCME from 2002 through 2004. A full case review was performed for all of the cases in which cardiac death was listed as the primary cause of death after autopsy or external exam and in which the decedent was under the age of 50 years. Socially influenced factors, such as obesity (listed as contributory on the death certificate), tobacco use, and chronic ethanolism were noted for each case in addition to the decedents' medical histories.

Decedents whose cause of death was cardiac-related comprised 52% of cases presenting to the HCME during the 2002-2004 time period. Of those cases, 20% were under the age of 50, 72% were male and 51% were of Caucasian descent. A notable 43% were smokers. Obesity was listed on the death certificate as a contributing factor in 5% of the cases and chronic ethanolism contributed in 3%. Atherosclerotic Cardiovascular Disease and Hypertensive Cardiovascular Disease were diagnosed in 54% of those individuals under the age of 20 years. From 2002 to 2004, cardiovascular disease was shown to be the cause of death in 16 children between the ages of 12 and 18, with the majority collapsing while participating in athletic events. In light of these findings further study has been initiated at the HCME, expanding the study to the five year span of 2001-2005, reducing the upper age limit to 40 years, and exploring other case history factors for all of the cases such as cardiac enzyme levels, and prescription and recreational drug use. Body Mass Index was also calculated for each decedent. The analyzed results of the expanded findings are described in the poster presentation.

The important contribution of socio-cultural behaviors to health status has been documented in the medical and public health literature. Modifications of these behaviors, combined with the use of basic non-invasive cardiac diagnostic screening tests may greatly reduce the risk of SCD among younger individuals, such as student athletes. The HCME and other medical examiner offices can be instrumental in raising community awareness of SCD. A key goal of this public health education should be to promote the benefits of screening and prevention measures.

Cardiac, SCD, Epidemiology