

Title: Comorbidity Profile for Out of Hospital Unexpected Deaths Varies By Age

Authors: Joan A. Maradey, MD; Jasmine Chigbu, BA; Irion Pursell, BS, BSN; Ross J. Simpson, Jr, MD, PhD; Eugene H. Chung, MD

Background

Out-of-hospital sudden unexpected death (OHSUD) is a common cause of death in the U.S.. The relationship between age and comorbidities has not been well characterized. We examined whether OHSUD had unique risk factors in two age groups by comparing the distribution of common comorbidities in cases below and above 45 years old.

Methods

We analyzed a population based cohort of out-of-hospital deaths in 18-64 year old residents of Wake County, North Carolina. Over a 12 month period, 1,138 referrals from Emergency Medical Services were screened. Cases were not excluded on timing or witness status. Using medical records, death certificates, and medical examiner reports, three board certified cardiologists independently adjudicated cases for inclusion. The final cohort consisted of 187 cases. There were no cases for ages 18-19. Comorbidities, determined from medical records, were compared for two age groups, 20-44 and 45-64. 5% of cases had no medical records or medical examiner reports.

Results

Annual incidence of OHSUD for the entire cohort was 30.9/100,000. Age-specific incidences were 9 and 63 per 100,000 for the 20-44 and 45-64 groups, respectively. 40% of the entire cohort was female. In the 20-44 group compared to the 45-64 group, dyslipidemia (39% vs 42%) and chronic respiratory disease (30% vs 28%) were equally prevalent. Coronary artery disease (30% vs 21%) and obesity (42% vs 29%) were more prevalent in the young group. Hypertension (42% vs 58%), diabetes mellitus (15% vs 33%), cardiomyopathy (15% vs 29%), and smoking (30% vs 42%) were more prevalent in the old group. The 45-64 group was twice as likely to have multiple comorbidities.

Conclusions

Out of hospital sudden death is a common cause of natural death and incidence increases with age. Comorbidities associated with out of hospital sudden death vary by age. Older victims are more likely to have multiple risk factors for cardiovascular disease. Preventive strategies for reducing sudden death should account for differences in comorbidities associated with age.