

Ethnicity, Marital Status and Neighborhood Poverty Influence Resuscitation of Out-of-Hospital Sudden Unexpected Deaths

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Background: Out-of-hospital cardiac arrest outcomes vary across communities. While these outcomes are known to be largely dependent on initiation of cardiopulmonary resuscitation (CPR), the effect of individual and neighborhood socioeconomic characteristics on CPR initiation is less clear. We examined the association between socioeconomic characteristics and the initiation of CPR in a population based registry of out-of-hospital sudden unexpected death (OHSUD) victims.

Methods: From 2013-2015, all EMS attended out of hospital deaths in Wake County, NC were adjudicated. Individual level data, including gender, race, age, occupational status, years of education, and co-existing medical conditions were collected from death certificates, emergency medical services (EMS) referrals, and medical records. Initiation of CPR was determined by EMS records. Census tract data, including neighborhood poverty and overcrowding, were determined using home addresses. Poverty area was defined as tracts with >20% below the poverty line. Overcrowding was defined as tracts with >5.7% overcrowding. Univariate and multivariate logistic regression was performed.

Results: we adjudicated 408 OHSUD cases between 18-64 years old, representing 14% of all deaths in this age range. CPR was attempted in 159 victims (39%). Whites (OR: 0.61, 95% CI 0.4-0.92) and non-married victims (OR: 0.48, 95% CI 0.32-0.73) were less likely to receive CPR. Although not significant, women, higher education, residence in areas with high poverty and less overcrowding received CPR less frequently. In multivariate analysis, being white (OR: 0.58, 95% CI 0.37-0.91), not married (OR: 0.53, 95% CI 0.35-0.82) and living in a poor neighborhood (OR: 0.52, 95% CI 0.29-0.91) were associated with no CPR attempted.

Conclusion: Socioeconomic characteristics are associated with resuscitation attempts in out of hospital sudden unexpected death. Resuscitation attempts are influenced by delayed identification of cardiac arrest. Socioeconomic characteristics need to be recognized and accommodated for in community outreach programs to improve cardiac resuscitation efforts.