

Letters

Sexual Activity as a Trigger for Sudden Cardiac Arrest



Sexual activity is an important aspect of quality of life, and is associated with both health and mortality benefit (1). Nonetheless, it is not without risk. In a study from Germany, 0.2% of autopsied natural deaths were linked to sexual activity (2). It is also recognized that sexual activity may trigger nonfatal acute cardiac events such as myocardial infarction. Sudden cardiac arrest (SCA), which manifests as an unexpected collapse and loss of the pulse, is a mostly lethal condition that results in over 300,000 deaths annually in the United States. Physical activity, especially when nonhabituated, has been associated with increased risk of SCA (3). To our knowledge, there is no available information on sexual activity as a potential trigger for SCA in the general population.

The community-based Oregon SUDS (Sudden Unexpected Death Study) study, ongoing since 2002, uses multiple-source ascertainment to prospectively identify cases of SCA that occur in the Portland,

Oregon, metropolitan area (catchment population approximately 1 million) (4). All SCA cases are adjudicated based on emergency medical services reports containing detailed circumstances of the cardiac arrest event, lifetime medical records, and autopsy data. Emergency medical services personnel record the individual's location, activity, and circumstances of SCA. We included all subjects over 18 years of age, ascertained between 2002 and 2015. All SCA cases that occurred during or within 1 h of sexual intercourse were considered as related to sexual activity (sex-SCA).

For comparisons between sex-SCA versus all other SCA cases, independent sample Student's *t*-test, Pearson's chi-square test and Fisher exact test were used. For calculation of SCA incidence rates, analysis was limited to the first 10 years from Multnomah County, the largest subset of the Portland metropolitan area (average population >18 years of age = 544,370).

A total of 4,557 SCAs were identified (mean 65.2 ± 16.3 years of age; 68.0% men). Of these, 4,525 (99.0%) had detailed information available to determine whether sexual activity preceded SCA. Overall, 34 (0.7%) of SCAs were linked to sexual activity, yielding an annual incidence of 0.28 per 100,000 adults. SCA occurred during sexual activity in 18 (55.0%) of these cases, and within minutes after cessation of sexual activity in 15 (45.0%) cases. For one case, exact timing could not be determined. Of the sex-SCA cases, 32 (94.0%) were men. Among men, sex-SCA was responsible for 1.0% of overall SCA burden, compared with 0.1% among women.

Individuals with sex-SCA were on average 5 years younger (range 34 to 83 years of age) and more likely to be African American than were the rest of the SCA cases (Table 1). Cardiac comorbidities were relatively common in both groups. Among those with sex-SCA, 29% of patients had a history of coronary artery disease, 26% had symptomatic heart failure, and the majority were taking cardiovascular medications.

Sex-SCA was more likely to present with ventricular fibrillation or tachycardia than other SCA (76% vs. 45%; *p* < 0.001), and this finding remained consistent in a sensitivity analysis of subjects with witnessed cardiac arrest. Only one-third of the sex-SCA cases received bystander cardiopulmonary resuscitation (CPR). There was a nominal difference

TABLE 1 Clinical Characteristics of Patients With SCA Related to Sexual Activity, Compared With SCA Occurring During Other Circumstances

	Sexual Activity-Related SCA (n = 34)	Other SCAs (n = 4,523)	p Value
Age, yrs	60.3 ± 10.6	65.2 ± 16.3	0.011
Male	32 (94.1)	3,068 (67.8)	0.001
Race			0.022
Black	6 (18.8)	330 (7.8)	
Other	26 (82.2)	3,896 (92.2)	
Medical history			
Heart failure	8 (25.8)	1,097 (26.0)	0.92
Coronary artery disease	9 (29.0)	1,016 (24.0)	0.58
Cardiac arrest characteristics and outcomes			
Ventricular fibrillation/tachycardia	25 (75.8)	1,567 (45.2)	<0.001
Bystander CPR	11 (32.4)	1,232 (27.2)	0.51
Return of spontaneous circulation	14 (41.2)	1,488 (33.4)	0.34
Survival to hospital discharge	6 (19.4)	555 (12.9)	0.29

Values are mean ± SD or n (%). Race available for 32 sex-related sudden cardiac arrests (SCAs) and 4,226 other SCAs; medical history available for 31 sex-related SCAs and 4,226 other SCAs; initial SCA rhythm available for 33 sex-related SCAs and 3,464 other SCAs; survival status available for 31 sex-related SCAs and 4,290 other SCAs. CPR = cardiopulmonary resuscitation.