

Sudden Cardiac Death: Time to Pay Heed to the Warning Bells

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Devastating news shook us this morning, as we came to know about the sudden demise of a beloved junior colleague of ours, a 29-year-old young physician who had no external manifestation of any kind of disease process. This catastrophic event has left his family, friends, and teachers dumbfounded—and I feel introspection into the magnitude and consequences of sudden cardiac deaths is warranted.

Sudden cardiac death (SCD) is death due to a cardiovascular cause that occurs within one hour of the onset of symptoms or if unwitnessed within 24 hours of last being seen alive.

The incidence of sudden cardiac death is on the rise in the last decade, with current literature quoting an incidence of 0.55 per 1,000 in India, with 50% of cardiovascular deaths being sudden cardiac deaths. The median age of occurrence is in a younger age group in the Indian subcontinent and males are more likely to suffer from the event.

Coronary artery disease is the most common cause of sudden cardiac death, accounting for up to 70–80% of all cases. In subjects less than 35 years of age hypertrophic cardiomyopathy (HCM), arrhythmogenic right ventricular cardiomyopathy (ARVC), channelopathies or a fatal arrhythmia in a structurally normal heart could be the underlying cause.

It has been documented, as many as 45% of persons who have SCD were seen by a physician within 4 weeks before death. A review of history from relatives has revealed prior restrictions from participation in sports or instruction for cardiac investigations by physicians may have been ignored by the victim. Prodromes of chest pain, fatigue, palpitations, exertional dyspnea as well as dizziness and syncope episodes should be urgently evaluated with investigations.

Strikingly, almost half of the patients who have sudden cardiac arrests (SCA) report no symptoms before the collapse. In those cases, meticulous family history of syncope, sudden cardiac death, premature coronary artery disease, known cardiomyopathy, or channelopathy in relatives should be sought.

These are major risk factors designated by American Heart Association and American College of Cardiology (AHA/ACC) guidelines along with left ventricular (LV) systolic dysfunction and significant left ventricular hypertrophy.

Initial diagnostic evaluation in people with risk factors should include a comprehensive physical examination with a three-generation family history. An initial electrocardiogram (ECG) and 24–48-hour ambulatory ECG monitoring is recommended. If HCM is detected it should be followed by surveillance ECG every 1–2 years along with a transthoracic echocardiogram (TTE).

Genetic testing is recommended if evidence of inherited cardiac disorders is documented by a preliminary workup. This enables the detection of various genetic variants and could modify routine diagnostic workups.

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The management of sudden cardiac arrests is also a vital issue as the time interval between onset and resuscitation is of prime importance. Irreversible brain damage by 5 minutes.

The time from symptom onset to emergency department arrival for patients with acute ST-elevation myocardial infarction ranges between 110 and 140 minutes in North America, while in India, it is 180–330 minutes. Lack of symptom awareness, longer distances traveled to reach the hospital, and problems with transportation are the main causes of delay.

Although 86.2% of out-of-hospital cardiac arrests (OHCA) were witnessed, cardiopulmonary resuscitation by bystanders is provided in only 7.4% of cases. Cardiopulmonary resuscitation training and accessibility to emergency services are woefully lacking in our country and need to be speeded up.

As the outcome of cardiac arrests is so poor with only 8% survival till discharge, prevention is the mainstay of tackling this devastating event.

Even in countries of the world with highly evolved emergency medical care only a small proportion of patients suffering from ventricular fibrillation survive.

Primary prevention of SCD therefore is the strategy of choice and it requires identification of future sudden death victims before the first arrhythmia episode. Early identification of at-risk individuals, lifestyle modification, and treatment of coronary artery D, disease, hypertension, heart failure and diabetes with drugs that have mortality benefits are the most effective interventions.

Moreover, studies in patients with a prior history of cardiac arrest, or sustained ventricular tachycardia (VT) have demonstrated convincingly that the implantable cardiac defibrillator (ICD) is both effective and superior to antiarrhythmic drug therapy in preventing all-cause of mortality.

But in low resource countries like ours, the use of ICD is restricted with financial constraints and lack of availability being the prime factors.

To summarize, sudden cardiac death is a public health issue and there is the paucity of data regarding its magnitude and

consequences. Thus research platforms are required to evaluate its incidence and impact on society. The creation of a multisource surveillance SCD registry is of utmost urgency for formulating management goals.

For survivors of sudden cardiac arrest (SCA), and their relatives, a multidisciplinary team is essential for comprehensive care and measures need to be taken for improving outcomes through public education and the provision of cardiopulmonary resuscitation (CPR) training among health personnel and lay persons.

FURTHER READINGS

1. Risgaard B, Winkel BG, Jabbari R, et al. Burden of sudden cardiac death in persons aged 1 to 49 years nationwide study in denmark. *Circ Arrhythm Electrophysiol* 2014;7(2):205–211. DOI: 10.1161/CIRCEP.113.001421.
2. Hayashi M, Shimizu W, Albert CM. The spectrum of epidemiology underlying sudden cardiac death. *Circ Res* 2015;116(12):1887–1906. DOI: 10.1161/CIRCRESAHA.116.304521.
3. Bagnall RD, Weintraub RG, Ingles J, et al. A prospective study of sudden cardiac death among children and young adults. *N Engl J Med* 2016;374(25):2441–2452. DOI: 10.1056/NEJMoa1510687.
4. Stiles MK, Wilde AA, Abrams DJ, et al. 2020 APHRS/HRS expert consensus statement on the investigation of decedents with sudden unexplained death and patients with sudden cardiac arrest, and of their families. *Heart Rhythm* 2021;18(1):e1–e50. DOI: 10.1016/j.hrthm.2020.10.010.