The curious case of sudden cardiac death

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Madam, sudden cardiac death (SCD) is defined as unexpected death due to loss of heart function occurring in a short time period (generally within 1 hour of symptom onset) in the absence of a previously diagnosed fatal condition.[1] It is the most common cause of natural death in the United States, causing about 325,000 (about half of all cardiac deaths) out-of-hospital adult deaths each year.[2] Most cases of SCD are attributable to cardiac arrhythmias, and for the majority of individuals, SCD represents the first and the only expression of underlying cardiac disease.

The most common electrophysiologic disturbances leading to SCD include tachyarrhythmias such as ventricular fibrillation. Majority of the cases of SCD occur in patients with structural abnormalities of the heart. These may be inherited, or caused as a result of entities such as myocardial infarction. Coronary artery disease is currently the leading cause of SCD. Other causes include ventricular hypertrophy, intrinsic myocardial defects, inflammatory or infiltrative heart disorders, primary electrophysiological abnormalities and electrolytic abnormalities.[3]

Identifying the patients at risk poses a challenge to the physicians. Among predictors of SCD, left ventricular dysfunction remains the most important. Other risk factors include age, hypertension, metabolic disturbances (e.g hypercholesterolemia), smoking, positive family history and drugs.[4] For most cases, the presentation is abrupt without prior omens. However, some may experience symptoms of sudden cardiac arrest (SCA), such as chest pain, shortness of breath, palpitations, dizziness or syncope.

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Prophylactic measures can drastically reduce the risk of SCD. Among pharmacologic therapies, ACE inhibitors, beta-blockers, calcium-channel blockers, and other antiarrhythmics may be prescribed especially following myocardial infarction (MI). Surgical interventions may be required for those considered high risk, or for those who have survived a previous episode of SCA. An implantable cardioverter defibrillator (ICD)may be surgically placed in order to monitor heartbeat.[5] In case of an irregular rhythm it delivers a powerful shock in order to restore normal rhythm. Other procedures such as angioplasty, electrical cardioversion and catheter ablation may also prove beneficial.

It is worthwhile to note here that SCD carries special significance for young athletes. Since 63% of Pakistan's population falls under the United Nation's (UN's) definition of youth, SCD may comprise a large percentage of fatalities, although available data is scarce. Large-scale measures aimed at arousing awareness against risk factors are essential. Public awareness sessions aimed at improving CPR skills in case of SCA are also required, in order to reduce the mortality rate in our setup.

References

1. Zipes DP, Wellens HJ. Sudden cardiac death. Circulation 1998; 98: 2334-51.
2. Zheng ZJ, Croft JB, Giles WH, Mensah GA. Sudden cardiac death in the United States, 1989 to 1998. Circulation 2001; 104: 2158-63.
3. Tintinalli JE, Kelen GD, Stapczynski JS, Ma OJ, Cline DM. Causes of Sudden Cardiac Death. In: Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 6th ed. New York: McGraw-Hill; 2004; pp 86.
4. Myerburg RJ, Interian A Jr, Mitrani RM, Kessler KM, Castellanos M. Frequency of sudden cardiac death and profiles of risk. Am J Cardiol 1997; 80: 10F-9F.
5. Ezekowitz JA, Rowe BH, Dryden DM, Hooton N, Vandermeer B, Spooner C, et al. Systematic review: implantable cardioverter defibrillators for adults with left ventricular systolic dysfunction. Ann Intern Med 2007; 147: 251-62.