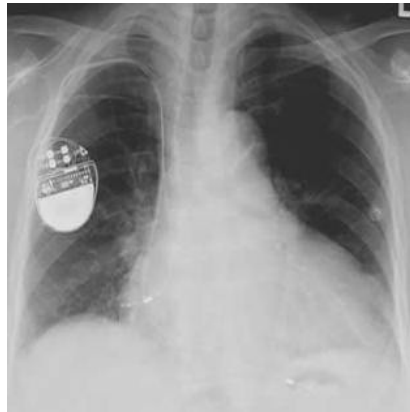




Monitoring of Pacemakers, Defibrillators Underestimates Device Problems



According to a study published in *JAMA Internal Medicine*, the current monitoring of patients with cardiac implantable electronic devices (CIEDs) such as pacemakers and defibrillators may be underestimating device problems. Researchers from the University of California propose systematic methods to determine accurate causes of sudden death in those with CIEDs as well as improved monitoring for device concerns.

Over three million Americans have a permanent pacemaker or implantable cardioverter-defibrillator (ICD). While manufacturers and facilities such as hospitals are required to report if a device has contributed to a death or serious injury, the fact is that more than 90 percent of sudden cardiac deaths happen outside the hospital. Autopsies of deaths from CIEDs are rarely performed and thus the role device failure may have played in such deaths remains unknown.

During this study, a prospective autopsy study of all sudden deaths with pacemakers or defibrillators was conducted over a 35-month period as a sub-study of the San Francisco Postmortem Systematic Investigation of Sudden Cardiac Death (POST SCD) Study. The objective was to discover the true causes of sudden cardiac death, why it is more prevalent in some demographic populations and whether it is inaccurately cited as a cause of death.

The findings show that of the 517 deaths investigated, 22 (4.3 percent) had CIEDs. Six of the 22 deaths had a non-cardiac cause of death. Six of the 14 pacemaker sudden deaths and seven of eight defibrillator sudden deaths were from ventricular tachycardia and ventricular fibrillation. In half of the 22 sudden deaths, device concerns were identified. Three were related to hardware failures, five were defibrillators with VF undersensing, one was a defibrillator with VT missed due to programming, one was an improper device selection and another was a pacemaker-dependent patient with pneumonia and concern for lead fracture. Six of the eight ICD sudden deaths had either undersensing of ventricular arrhythmias or hardware failure.

The researchers also identified and reviewed 712 residents with a defibrillator during the three-year study period. 15.3 percent of these patients died and 6.4 percent of these deaths were due to defibrillator issues.

According to lead author Zian H. Tseng, MD, MAS, associate professor of medicine in residence in the Cardiology Division and Cardiac Electrophysiology Service at UCSF. "Because these devices are intended to prevent sudden death, careful monitoring for potential device problems should include a complete postmortem investigation when sudden deaths occur in those with CIEDs. It is also important to recognise that we found that a third of device concerns were related to physician practices and present opportunities for practice improvement."

Source: University of California

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