

Sudden Cardiac Arrest in the Young

The Sudden Arrhythmia Death Syndromes (SADS) Foundation

Although not common, sudden cardiac death (SCD) of a young person is a devastating event for the family, friends, school and community. In many cases SCD is preventable and the school nurse is in an ideal position to educate and encourage screening for SCD risk factors for school-aged children and the implementation of an AED program.

Each year in the United States, more than 250,000 people die suddenly and unexpectedly due to cardiac arrhythmias—3,976 of them under the age of 35 (CDC 2002). According to the Centers for Disease Control, deaths from sudden cardiac arrest (SCA) increased 10 percent (from 1989 to 1996) in people between the ages of 15 and 24. In young women, the death rate from SCA increased 30 percent.

Etiologies of SCD in the young include: cardiomyopathy, Long QT syndrome (LQTS), congenital coronary artery anomalies, Marfan syndrome, Brugada Syndrome, etc.

Heart arrhythmias cause loss of consciousness by slowing the blood pumping function of the heart, which decreases blood supply to the vital organs of the body, particularly the brain. However, loss of consciousness caused by vasovagal events (the common faint due to a drop in blood pressure) and seizures must be separated from syncope caused by cardiac arrhythmias. A vasovagal event is most often precipitated by obvious factors such as pain, nausea, seeing blood, or other unpleasant stimuli. The individual becomes dizzy, warm and sweaty, has blurred vision, and usually has time to sit or lie down, which might lessen the symptoms or prevent the loss of consciousness. If a loss of consciousness does occur, it is very brief, and the person regains consciousness within a few seconds, being alert and oriented immediately.

Seizures, on the other hand, usually have no obvious precipitating factors; have no preceding symptoms other than occasionally a strange feeling. The event may last a few seconds to a minute or more. After the event, the individual is often confused, disoriented, and lethargic for some time. In contrast, syncope caused by a cardiac arrhythmia disorder is sudden, usually occurs without warning and often occurs during or immediately following exercise. Gasping or absences of breathing, absence of a pulse, and cyanosis or turning blue, generally accompany a cardiac syncope. Loss of consciousness usually lasts from one to several minutes and in some cases the patient requires resuscitation. These differences in presentation usually allow conditions to be correctly separated. Confusion often occurs as a result of a superficial rather than a comprehensive history of the event.

Most SCA in children is hereditary—therefore, more than one family member will be at risk and the total family must be evaluated if one family member is being evaluated. Evaluating the whole family may also assist the electrophysiologist when the diagnosis is not immediately evident. The symptoms of genetic arrhythmias (like LQTS) are frequently misdiagnosed as vasovagal syncope, asthma or epilepsy and these young people may have no cardiac evaluation. Thus the opportunity to diagnose and treat SADS conditions is missed. All children with syncope associated with exercise should

have a cardiac evaluation, including an ECG. Further, any child with a negative EEG after a syncopal episode should have an ECG.

About half of the pediatric and young adult population who die from SCD experience warning symptoms. For the other half, SCD may be the first “sign” of this life threatening condition. Having a program in place for cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) in schools is vital. Defibrillation within 3 to 5 minutes is especially important to victim survival.

The Sudden Arrhythmia Death Syndrome (SADS) Foundation offers a simple, comprehensive risk assessment form “Pediatric Sudden Cardiac Death Risk Assessment Form” that can easily be used by the school nurse. It can be obtained from our web site (www.sads.org).

School nurses are at the forefront of at-risk child identification, intervention, and prevention. The death of a child to sudden cardiac arrhythmia can happen, and we need your help! Incorporating into the routine health assessment, a risk assessment for warning signs and family history of sudden cardiac death and advocating for secondary prevention program in your schools, just may save a life!

The SADS Foundation is dedicated to saving the lives and supporting the families of children and young adults who are genetically predisposed to heart rhythm disorders. We provide general awareness/prevention, medical education, family support and advocacy/research.

Editor’s note: More comprehensive information, as well as a parent article will be available at the FASN State Conference, February 8 & 9, 2008.