

Home AED Trial

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Every 2 minutes someone in our country dies from an abrupt change in heart rhythm from normal to a chaotic rhythm called ventricular fibrillation. This change in rhythm occurs without any warning and is known as Sudden Cardiac Arrest (SCA). SCA frequently occurs in patients who are having heart attacks, but it can occur in patients who are not having heart attacks or who have had a heart attack in the past.

There have been major advances in successful intervention resulting in improved survival after SCA. The key to survival is rapid response (minutes) to correct the abnormal rhythm (ventricular fibrillation) by a bystander who administers an electric shock using a device known as an automated external defibrillator (AED).

In the past, AEDs were used primarily by emergency medical technicians immediately on arrival to the scene where SCA had occurred. It was quickly recognized that survival, and survival without neurological damage, was dependent on how long a patient had to wait for AED treatment. Statistics show that survival rates decline 10% for every minute of delay after the onset of SCA. If there is a delay in correcting heart rhythm with an AED beyond 10 minutes, survival and survival without significant neurological damage is very rare. Currently a person experiencing SCA is thought to have the best chance of survival if AEDs are used within 3 minutes after SCA.

It is clearly not possible to provide the rapid response needed to have a major impact on the survival of patients with SCA using emergency medical personnel. Recent focus has been on making AEDs easy to use and readily available. For example, AEDs are now available in airports, airplanes and casinos. Successful treatment with AEDs by persons ON THE SCENE (and not trained professionals) have resulted in survival and survival without neurologic damage in 40-80% of patients experiencing SCD in these locations.

Unfortunately 70% of patients with SCA occur in the home or away from sites where AEDs are routinely available. Heart Center of the Rockies is currently involved in a nation-wide study designed and sponsored by the National Heart, Lung and Blood Institute to demonstrate the benefit of AED use by family members of patients who are at risk for SCA.

Patients who are at high risk for SCA and who qualify for this study will be provided with AEDs for home use along with training in AED use for willing family members. A total of 7000 patients will be followed for 2 years to determine if immediate or prompt (less than 3 minutes) responses by family members using an AED will provide improved survival when compared to patients with SCA who are treated without an AED immediately available for use by a family member. If successful, making relatively inexpensive and easy to use AEDs available to high-risk patients and their families may become routine practice.