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Automated External Defibrillator Use In Dentistry

> "Is it now time to move toward a standard of practice for dentists to be trained in the use of AEDs?"

The German philosopher Arthur Schopenhauer said, "All truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident." Could this quotation apply to aspects of dentistry? Given that our profession exists to maintain and improve oral health, is it appropriate for a dentist to be applying large currents of electricity into a patient to stop a cardiac arrhythmia? Should this capability become the standard of care in dentistry? "Ridiculous," some may say.

Automated external defibrillators (AEDs) were developed in part to address the unfortunate reality that in spite of widespread skills in basic life support, or cardiopulmonary resuscitation (CPR), many people do not survive a sudden cardiac arrest. Out-of-hospital sudden cardiac arrests result in 250,000 deaths in the United States every year, with the survival rate being an abysmal 6%.[1] The most common initial rhythm in a cardiac arrest is ventricular fibrillation. Its definitive treatment is electrical defibrillation, which temporarily stops the heart with the hope that a functional rhythm will subsequently return.

Survival from a sudden cardiac arrest decreases 7% to 10% with every 1-minute delay in receiving CPR and defibrillation.[2] This rate is improved with immediate basic CPR, but even in such cases, early defibrillation is the key to saving the victim's life. This realization led to the proliferation of AEDs in a variety of settings. The machines are designed to be used by anyone capable of learning basic CPR, whether a health care professional or not, as electrocardiogram (ECG) recognition is not required. Using an AED is quite simple and requires a relatively small amount of formal training in addition to basic CPR. A study published in 1999 showed that a class of Grade 6 students easily learned how to correctly use an AED.[3]

The initial steps involved in using an AED are to verify cardiac arrest and begin administering CPR while another person retrieves the AED machine. When the AED unit is switched on, voice prompts will guide the user. These prompts instruct the user to place electrodes on the victim's chest. The machine will analyze the cardiac rhythm and advise whether or not a shock is required. If no shock is necessary, CPR should continue. When a shock is advised, the person responsible should first ensure that no one is touching the patient and then activate the AED to deliver the shock. Once the shock is complete, CPR should be resumed.

The integration of AED use with CPR has led to an improvement in survival rates where lay rescuer CPR and AED programs are in place, such as in airports and casinos. Public access to AEDs in other venues is increasing. With this reality, a number of dentists have already received training and obtained AEDs for their own offices. To my knowledge, currently in Canada it is not a requirement in any province for a dentist to have one of these units. While it is not the standard of care in dentistry today, should it be in the future?

Change can be frightening. Change can make us feel uncomfortable. Yet without change there is no progress. One may argue that in dentistry we treat teeth, not hearts, so an AED has no place in our offices. While it is true that we treat teeth, it is more correct to say that we treat patients. If we can easily carry out an action that will save a life, should we not embrace this skill? Is it now time to move toward a standard of practice for dentists to be trained in the use of AEDs and have the machines readily available?

Some may feel it is inappropriate for a dentist to shoot electrical currents into a patient in order to affect the heart. Others may ridicule this suggestion. Hopefully we can bypass Schopenhauer's second stage and accept the use of AEDs as self-evident as the future standard of care in dentistry.

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References

The complete list of references is available in the electronic version of this article at www.cda-adc.ca/jcda/vol-73/issue-4/289.html.