Using a Defibrillator

Problem

Sudden cardiac arrest is a leading cause of death worldwide. Expert guidelines advocate defibrillation within two minutes after an in-hospital cardiac arrest caused by ventricular arrhythmia. Studies show that for each minute of untreated cardiac arrest, the probability of successful rhythm conversion decreases by seven to ten percent. Nurses must know where to get a defibrillator in an emergency and how to properly use it.

Consequence

Failure to properly use a defibrillator quickly after cardiac arrest will likely lead to the death of the patient.

Solution

Here are some considerations associated with using a defibrillator.

- Defibrillator user errors are common and include:
  - Attempting to shock ventricular fibrillation in a synchronized mode
  - Inattention to lead selection
  - Failure to properly maintain and check devices resulting in uncharged batteries
  - Mismatch of cables with specific defibrillators
  - Holding the defibrillator in a charged state too long, leading to an automatic discharge that requires recharging for actual use.

- One cause for variation in quality of resuscitation effort are infrequent practice of resuscitation skills training by hospital staff.

- Another cause for poor quality resuscitation is the need to immediately function as a team with others with whom they have not rehearsed.

- One method of preventing user error related to equipment inexperience and unfamiliarity is to require checks of the equipment daily, or per shift, in high-use areas.
- As many potential rescuers should be taught to perform the daily inspections to keep them prepared for use during an emergency.

- An additional step towards minimizing user error is to utilize a checklist system for assessing the readiness of the equipment and in its operation; such checklists are a proven tool in other industries where a highly complex set of equipment must function correctly with essentially no tolerance for error.

- Where possible, defibrillators should be standardized within an institution to avoid equipment confusion and mismatching of cables and other disposable supplies.

- By incorporating these strategies into daily practice, resuscitation equipment can become both familiar and safe, and cardiac arrest treatment can be approached with greater confidence by nurses and other members of the hospital team.

**References**

*Avoiding Common Nursing Errors*, Lisa Marcucci, MD, Editor, Lippincott Williams and Wilkins, 2010