Automated External Defibrillators (AED)

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Defibrillation has been in existence as far back as 1899 when two physiologists from the University of Geneva in Switzerland, Prevost and Batelli, discovered that small electric shocks could induce ventricular fibrillation in dogs, and that larger charges would reverse the condition. Since this time Defibrillation has become a staple in the medical field, allowing a treatment for sudden cardiac arrest. The most common cause of cardiac arrest is a heart rhythm disorder or arrhythmia called ventricular fibrillation (VF).

It wasn't until 1947 that defibrillation was performed on a human, but the method was far different from what we now see on medical TV shows and such. During this time, the only way defibrillation could be performed was when the chest cavity was open during surgery. Paddle-like electrodes were places directly on the exposed heart. In the mid-1950s however, Dr V. Eskin from Frunze, USSR pioneered the first closed-chest defibrillator, which conducted by means of externally applied electrodes through the chest cage to the heart. These old devices used AC current but that would soon change.

In 1959, there was a move to DC current, delivering the charge through an inductance such as to produce a heavily damped sinusoidal wave of finite duration (~5 milliseconds) to the heart by way of 'paddle' electrodes. This was used up until the 1980s when studies showed that a biphasic truncated waveform (BTE) was equally effective, but allowed for the shrinking of Defibrillation devices.

In today's hospitals and ambulances, Manual External Defibrillators are used and now double as a defibrillator but also an electrocardiogram reader which tells the healthcare provider of the cardiac condition from which he/she can decide on what charge to use. Although very effective, only trained professionals can use this type of device and with sudden cardiac arrest (SCE), time is of the essence.

Because of this, research has been done to create AEDs (Automated External Defibrillators). These can be found today in places like airports, schools, hotels, restaurants, etc. Although much easier to use than their manual counterparts, training is still usually required and given in most CPR classes. Also, there is always the problem that SCE may occur in the home.

Phillips thought of this and has created the first and only automated external defibrillator approved for home use without a prescription, the Philips HeartStart Home Defibrillator. It is very portable and can be used by anyone with voiced step by step instructions provided by the device, and pictures showing how to use the device. These devices cost about $1300 to buy, but it's a small price to pay to save a life.

Works Cited:

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