

Implantable Defibrillator

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Abstract— This paper describes the functionality of a device called the implantable defibrillator and the effects it has on the patients that use it. The pros and cons of the device will be explored and an insight into the live-saving capabilities will be discussed.

I. INTRODUCTION

A team of doctors at Sinai Hospital in Baltimore pioneered the invention of the implantable cardioverter-defibrillator. The actual research on the implantable defibrillator was completed in 1969, but it was not until 11 years later that the device was tested on patients. At this time numerous other teams of researchers were working towards developing the same device and none were able to develop an approved prototype before the Sinai Hospital team.

II. METHODS

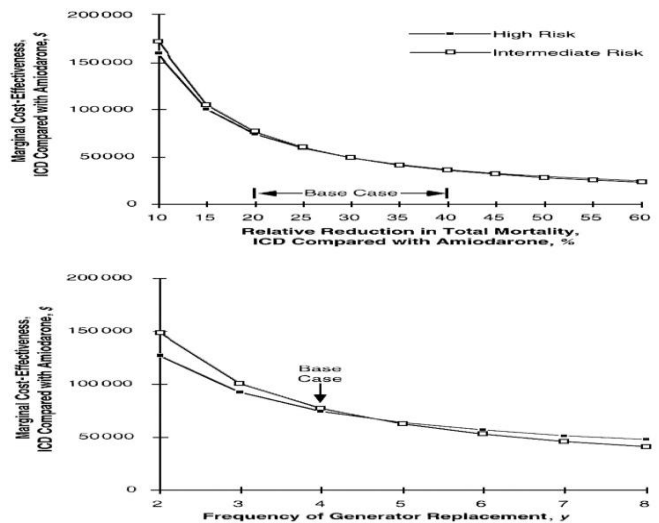
An implantable cardioverter-defibrillator is a small device that is implanted on the skin. It generates an electrical impulse, or shock, when it detects an irregularity in the heartbeat of a patient. Patients that require this device suffer from conditions in which their heartbeat is excessively rapid or excessively slow. The device has also been shown to have positive effects in patients that suffer from congestive heart failure. The device can serve the temporary purpose of keeping the heart in function while awaiting a heart transplant.



The actual design of the device itself is relatively simple; it consists of two major components, being the main unit and the electrode wires. The device is implanted directly under the skin through a minimally invasive procedure, typically on the left side of the chest.

III. RESULTS

Critics argue that implantable defibrillators are an excessive application of the traditional external defibrillator. Arguing that most patients do not suffer cardiac arrhythmia frequently enough to have a device implanted inside them. But statistics have proven that implantable defibrillators have saved lives.



IV. DISCUSSION

In conclusion, the implantable cardioverter-defibrillator has been proven to be a very effective means as by which to prevent death due to cardiac arrhythmia. The use of an ICD is the most commonly used preventative method when it comes to patients with intermediate to severe heart conditions. Combined with proper medication ICDs have life saving qualities.

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