Implantable cardioverter defibrillators (ICDs) detect ventricular arrhythmias and deliver a jolt of electricity to restore normal heart rhythm. The strength of required electric shocks and the inability to predict when future shocks will occur cause pain and anxiety for many patients. Anti-tachycardia pacing (ATP) restores normal heart rhythm without electric shocks, but its use is limited due to concerns that ATP may not terminate severe arrhythmias. The proposed technology utilizes a novel algorithm in conjunction with an ICD to determine whether ATP or electric shock is required to restore normal heart function. The algorithm uses data already collected and stored by the ICD to predict blood pressure response during an arrhythmia by identifying the cycle length and depolarization rate of the sinoatrial node. With this software, clinicians can utilize ATP more effectively and eliminate unnecessary electric shocks.

**Facilitates use of anti-tachycardia pacing to restore natural heart rhythm.**

**Eliminates unnecessary electric shocks and the damage they cause to the heart muscle.**

**Allows individualized application of therapy to ICD patients.**

**Increases ICD battery life by reducing number of shocks administered.**

**TECHNOLOGY SUMMARY**

Implantable cardioverter defibrillators (ICDs) detect ventricular arrhythmias and deliver a jolt of electricity to restore normal heart rhythm. The strength of required electric shocks and the inability to predict when future shocks will occur cause pain and anxiety for many patients. Anti-tachycardia pacing (ATP) restores normal heart rhythm without electric shocks, but its use is limited due to concerns that ATP may not terminate severe arrhythmias. The proposed technology utilizes a novel algorithm in conjunction with an ICD to determine whether ATP or electric shock is required to restore normal heart function. The algorithm uses data already collected and stored by the ICD to predict blood pressure response during an arrhythmia by identifying the cycle length and depolarization rate of the sinoatrial node. With this software, clinicians can utilize ATP more effectively and eliminate unnecessary electric shocks.

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