

# **Effectiveness of subcutaneous implantable cardioverter-defibrillator testing in patients with hypertrophic cardiomyopathy**

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## **Methods:**

As all new ICD options are being introduced in clinical practice, their efficacy must be demonstrated in each of the condition for which they are used. As in the early days of the transvenous ICD, the question arises whether the new S-ICD is capable of interrupting life-threatening arrhythmias in patients with severely increased cardiac mass, as in HCM. In this study, the device was tested at the time of implantation in an HCM cohort. Following placement of the device, ventricular tachycardia/fibrillation was induced in anesthetised patients patient, and the efficacy of the S-ICD was assessed. At the relatively low voltage levels set ad default, all but one of the patients were successfully cardioverted. The only failure occurred in an obese patients; because subcutaneous fat is know to increase energy requirements, the shock was delivered at higher energy in the patient, this time successfully. The study shows that the S-ICD is effective in HCM patients, although rarely higher energy shocks are needed, likely due to coexisting excess of subcutaneous fat.

## **What this means for patients:**

This is a prospective multicenter European study in which the effectiveness of the S-ICD in terminating ventricular arrhythmias was tested at the time of implant in 50 HCM patients. In all patients except one the device was effective in terminating provoked VT/VF at relatively low energy (65 joules). The only failure was severely obese (BMI 36): when VF was re-induced , it could be successfully converted by a higher energy shock at 80J. The study shows that the S-ICD is effective is terminating life-threatening arrhythmias in HCM, even when the heart is very thick; however, its efficacy may be limited by extra-cardiac factors such as obesity.