Methods: we reviewed the clinical data and arrhythmic episodes recorded by the ICD in 23 consecutive patients (65±15 y, 20 males) with spontaneous syncopal VT. Mean left ventricular ejection fraction was 34±17% and the patients had an average of 1.7±1.0 syncopal episodes prior to ICD implantation. A VT zone with a detection cycle length (CL) >280 ms and two antiarrhythmic pacing (ATP) schemes was programmed in all patients (15 beats burst at 31% VT CL and 2-3 sequences, and flexible programmable ATP at >88% VT CL and 1-2 sequences).

Results: At 26±19 moth follow-up 2 patients died and one underwent heart transplantation. Syncope occurred in 9 patients (39%), and in 5 of them it was related to arrhythmia. Three of these patients had just a single syncopal episode. In the remaining patients the syncope had no clear cause and in one patient hypoglycemia was demonstrated. At follow-up 7 patients had no VT recurrences. In the remaining 16 patients, 578 arrhythmic episodes were recorded by the ICD, but among them, 148 (25%) corresponded to supraventricular tachycardias or artefacts. All inappropriate episodes were treated by ATP and by cardioversion shocks in 8. Two and 7 of the 9 arrhythmic syncopal episodes were caused by ventricular fibrillation (VF) and VT respectively. Six of these VT episodes (66%) were accelerated to VF by ATP. Average CL at initial detection was 301 ms and total syncopal episode duration was 76 xc, whereas total nonsyncopal episode duration was 47 sec.

Conclusion: Syncope recurrence following ICD implantation is common in patients with syncope VT. In this setting, syncope is commonly due to arrhythmia, which is most of the time the result of ATP proarrhythmia.

P-344 ELECTRICAL STORM IN PATIENTS TREATED WITH ICD DEVICE

Backgrounds: Electrical storm (ES) was defined for the purpose of the present study as the occurrence of frequent episodes (more than 3/day) of hemodynamically destabilizing ventricular tachycardias or ventricular fibrillation requiring immediate electrical cardioversion or defibrillation. The aim of this study was to determine the incidence, causes and prognosis of ES in ICD recipients.

Methods: This observational study comprised 145 pts (125 M, 20 F, 70±15 years old), in whom a transvenous ICD system was implanted for secondary (125pts) or primary (20pts) prevention of sudden cardiac death. The cardiac substrate was: ischemic cardiomyopathy (90), dilated cardiomyopathy (35), arrhythmogenic right ventricular dysplasia (7), hypertrophic cardiomyopathy (4), Brugada syndrome (4), others (5). The NYHA class was I (16pts), II (25pts), III (50pts), IV (4pts). The LVEF was 34±17%. After ICD implantation, 80% of pts were under antiarrhythmic therapy.

Results: During the f.u. period, ES occurred in 25 (17,2%) pts at an average of 15±7 months after ICD implantation. The mean number of arrhythmic episodes constituting ES was 42±32 (range 6 to 92) per pt. Hospital admission was required in 21 pts. The presumed causes of ES were: a) deterioration of the clinical state in 16pts, b) electrolyte disturbances (hypokalemia) in 5 pts, c) fever in 2 pts, d) unknown in 2 pts. The LVEF of pts with ES was 28±9%[p<0.05]. The pts with ES caused by worsening of their clinical status had an overall mortality at 3 months of 20%, at 6 months of 60%, at 9 months of 70% and at 1 year of 80%.

Conclusions: 1) Electrical storm is not a rare event in ICD recipients especially in those with a low LVEF. 2) The triggering factors include mainly the deterioration of the clinical status. 3) The occurrence of electrical storm is associated with a poor prognosis.

P-345 CLINICAL PROFILE AND OUTCOME FOLLOWING IMPLANTATION OF IMPLANTABLE CARDIOVERTER DEFIBRILLATORS IN OCTOGENARIANS

Background: The role of implantable cardioverter defibrillator (ICD) in the treatment of malignant ventricular tachyarrhythmias is well established. Despite extension of indications for ICD therapy, there is a tendency to withhold ICD implantation in the elderly (>80 years), a population that is rapidly growing. We aim to study clinical profile and outcome following implantation of ICD in the octogenarians.

Methods: Implantation of ICDs were performed using nonhomoconomy method in 32 patients (pts) above 80 years old. Defibrillation thresholds (DFTs) were tested at the time of implantation and during follow-up. The pts were closely followed up for at least 4 months and subsequently at 4 monthly interval, or earlier if there were clinical events.

Results: The following characteristics were observed:

P-346 FUZZY LOGIC BASED DIAGNOSIS ALGORITHM FOR IMPLANTABLE CARDIOVERTER DEFIBRILLATOR
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Aim of the study: Now algorithms are needed to decrease the rate of inappropriate therapies, which are still a major problem in ICD.

Method: A fuzzy logic based control algorithm for the implantable cardioverter defibrillator (ICD) is presented. This algorithm allows for a significant lowering of the rate of occurrence of inappropriate therapies. 6 diagnostic categories are considered: VT (ventricular fibrillation, indication for shock therapy), VF (ventricular tachycardia, indication for ATP), ST (sinus tachycardia), DA1 (dissociated atrial event), ATE (atrial tachycardia), DAI (dissociated atrial event). The diagnosis is updated after every RR interval. An Automatic Rules Assessment using Simulated Annealing (ARASA) has been developed in order to assess a set of fuzzy rules from experimental data. The training and validation sets contain the internal recordings from different types of defibrillators obtained in two sites: Hospital Européen Georges Pompidou, Paris, France and Institute of Cardiology, Warsaw, Poland.

Conclusion: The long term performance of the IDL was evaluated in 69 patients (pts) who had defibrillators implanted in our institution, who had a regular follow-up for at least 24 months and in whom the performance of the ICD was normal during this initial period. The underlying heart disease was coronary artery disease in 52, dilated cardiomyopathy in 6, hypertrophic cardiomyopathy in 4, and other diseases in 7. Mean age of the patients was 62.14 years and mean ejection fraction 35.19%. There were 62 men and 7 women. Mean follow-up was 55±22 months.

P-347 THE LONG TERM PERFORMANCE OF IMPLANTED DEFIBRILLATOR LEADS
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Purpose: The implanted defibrillator leads (IDL) are complex leads used both for pacing and sensing the ventricle and for defibrillation. The purpose of this study is to evaluate the long term performance of IDL.

Methods: The long term performance of the IDL was evaluated in 69 patients (pts) who had defibrillators implanted in our institution, who had a regular follow-up for at least 24 months and in whom the performance of the ICD was normal during this initial period. The underlying heart disease was coronary artery disease in 52, dilated cardiomyopathy in 6, hypertrophic cardiomyopathy in 4, and other diseases in 7. Mean age of the patients was 62.14 years and mean ejection fraction 35.19%. There were 62 men and 7 women. Mean follow-up was 55±22 months.