INTRODUCTION: In patients who have an indication for an implantable cardioverter defibrillator (ICD) a dual-chamber device is indicated in the case of concomitant significant sinus node disease or atrioventricular block. It is a matter of debate whether dual-chamber ICD may be beneficial for patients with preserved sinus and atrioventricular nodal function as data from prospective randomized trials are limited. Mid- or long-term follow-up data are unavailable. METHODS AND RESULTS: One hundred patients (age 60+/-12 years, 11 women) with the indication for the implantation of an ICD and without anti-bradycardia pacing indication were randomly assigned to either receive a dual-chamber ICD (n=52) or a single-chamber ICD (n=48). Patients were followed-up for a mean of 52+/-14 months. Mortality and arrhythmogenic morbidity were assessed. All-cause mortality was 21% for single-chamber and 31% for dual-chamber ICD recipients, respectively (P=0.26). Cardiovascular mortality was 13% for single-chamber ICD recipients versus 21% in the dual-chamber group (P=0.25). Subgroup analysis using 35% of ventricular paced beats as cutoff value in the dual-chamber ICD group revealed a 42% mortality rate for the patients with frequent ventricular pacing compared to 10% of patients with a low rate of ventricular pacing (P=0.05, relative risk 4.21, 95%
confidence interval: 0.9-19.8). As for arrhythmogenic morbidity, the difference in the ventricular tachyarrhythmia load was not different in both groups (single chamber: 23+/−74 VT episodes, dual chamber: 54+/−134 VT episodes, P=0.17). CONCLUSION: In ICD recipients without conventional indication for dual-chamber pacing, dual chamber compared to single-chamber ICD has no advantage concerning mortality and arrhythmogenic morbidity in a long-term follow-up. In these patients the implantation of a single-chamber device is sufficient.