Introduction: It was reported that defibrillation test post implantable cardioverter defibrillator (ICD) implantation was necessity from the aspect of long-term prognosis, but then it was reported that ICD shock had an adverse effect on the prognosis. The aim of this study was to assess the usefulness of low-energy defibrillation in patients with ICD. The extent of myocardial injury by intracardiac shock was also evaluated. Methods: Of 238 consecutive cases (62±12 years); we performed 342 defibrillation tests just after device implantation and at predischarge. Additionally, we evaluated myocardium damage markers, heart-type fatty acid-binding proteins (H-FABP) and troponin T (TnT), before and 2 hours after defibrillation test in 44 patients. Results: The success of the first delivered shocks against ventricular fibrillation was similar for 10 J-defibrillation test 121/141 (86%), 15 J-defibrillation test 76/83 (92%), and 20 J-defibrillation test 89/91 (98%), respectively. Although 10 J-defibrillation test did not cause myocardium damages (ΔH-FABP 0.25±1.48 ng/mL, P=NS; ΔTnT 0.004±0.031 ng/mL, P=NS), plasma levels of myocardial injured markers significantly elevated after 15 J-defibrillation test (ΔH-FABP 4.38±4.35 ng/mL, P<0.05; ΔTnT 0.046±0.068 ng/mL, P<0.01). Conclusion: Significantly high rate of success was obtained from low-energy defibrillation test as well as conventional defibrillation test. For preventing useful myocardium damage, 10 J-defibrillation test may be ideal strategy. Keywords: ICD, DFT