

Long Term Outcomes of VDD Mode Pacing in Patients with Atrioventricular Block

Miry Blich, Mahmoud Suleiman, Tawfiq Zeidan Shwiri, Ibrahim Marai, Monther Boulos, Shlomo Amikam

Cardiology Department, Pacing and Electrophysiology, Rambam Medical Center, Haifa, Israel

Background: Current guidelines suggest the use of VDD pacemakers in patients with Atrioventricular (AV) block and normal sinus node function. However the possibilities of long term loss of atrial sensing, occurrence of permanent atrial fibrillation (AF) or late appearance of sinus node dysfunction (SND) make VDD mode being used much less than expected. The objectives of our study were to evaluate the efficacy and stability of VDD pacing in long term follow up and to find risk factors for the loss of VDD mode.

Methods: We retrospectively evaluated all patients with VDD pacemakers who were implanted in our center between 1995 and 2007 regarding atrial sensing, incidence of AF or sustained bradycardia and survival of VDD mode.

Results: During the study period, 123 consecutive patients with AV block (51% men, age 62 ± 17.8 years) received a VDD pacemaker for various degrees of AV block (third degree 63%, second degree 34% and first degree 3%). Mean follow up duration was 54.6 ± 39.2 months. At the last follow up visit, 76 pacemakers (78%) remained in VDD mode. Twenty-one patients (22%) lost their original VDD mode and were programmed to VVIR (undersensing, 11; chronic AF, 7; SND, 3). Chronic sensed p wave amplitude was significantly lower than the implant p wave (by 57%). In 30 patients (32%) VDD mode was restored or maintained by increasing atrial sensitivity. No episodes of atrial oversensing were observed. Age older than 75 years ($p=0.001$) and history of paroxysmal AF ($p=0.0001$) before the implantation as p wave lower than 1 mv during the follow up ($p=0.02$) were found as risk factors to lose VDD mode during the follow up.

Conclusions: VDD pacing has good long term performance. Age less than 75 years and absence of paroxysmal AF history, at implantation predict maintenance of VDD pacing mode. Close p wave amplitude check-up should be done routinely. Taking into account that no atrial oversensing was observed our recommendation is to increase atrial sensitivity when P wave amplitude declines to less than 1 mv, thus minimizing intermittent or long term atrial undersensing and loss of VDD mode pacing.