

may be related to concern regarding stability of atrial sensing or development of sinus node disease. However, a single lead system has the potential to reduce procedure time and complications, and reduce pacing cost compared to dual chamber pacing⁽¹⁻⁴⁾. The comparison of implant and outcome of patients with symptomatic AV block managed with VDD versus DDD pacing system to assess the long term stability and viability of VDD pacing^(6, 9, 13).

Patients and Methods

The study was conducted during the period between April 2006 to September 2007 on 48 patients (mean age 61.4 ± 11.2 years) with symptomatic 2nd degree or complete heart block and normal sinus node function attending the Cardiac Care Unit in Al-Kadhimia Teaching Hospital. Patients were implanted between April 2006 and September 2007. Sinus node function was judged by in-patient monitoring or out-patient referral material. Those patients are divided into two groups: DDD group who were implanted with DDD pacemakers (St. Jude Veriy ADx XL DR Model 5356) and VDD group, who were implanted with VDD pacemakers (St. Jude Veriy ADx XL VDR Model 5456). Each group consists of 24 patients.

Devices were implanted using standard implant techniques with local anesthesia. The subclavian puncture technique was used for venous access. Atrial and ventricular pacing and sensing thresholds were determined at implant using a standard programming system analyzer. In general ventricular and leads were repositioned if ventricular sensing was less than 10 mV, or the pacing threshold was greater than 1.0 V. Atrial leads were repositioned if sensing was less than 2.0 mV, or the pacing threshold was greater than 1.0V. Implant time was

defined as the time from patient entry into the implant room to patient departure. The fluoroscopy time was defined the summation of the total periods of X-ray radiation exposure. Both of them were measured. Standard pacemaker function was assessed after implantation and each follow up visit, including: Atrial sensitivity, atrial lead impedance, P-wave amplitude, event histogram (% of atrio-ventricular synchronous pacing).

Initial follow up was performed on the 2nd day, then on the 10th day, and after 1 month.

Failed atrial sensing was defined as P-wave amplitude not sensed by the pacemaker programmed threshold. Sinus node dysfunction was diagnosed if at least one of the following criteria was fulfilled: (1) sinus bradycardia below the pacemaker interventional rate of 45 beats/ min, (2) intermittent sinoatrial block, or (3) sinus arrest.

Results

Pacemakers were implanted in 48 patients. Those patients are divided into two groups: DDD group; which consists of 24 patients receiving DDD type pacemakers, and VDD group; which consists the rest of the patients who receiving VDD type of pacemakers.

Atrial sensitivity, atrial lead impedance, P-wave amplitude, event histogram (% of atrio-ventricular synchronous pacing), duration of implantation, and duration of fluoroscopy were used to compare the efficacy and sensitivity of DDD pacemakers in the DDD group with VDD pacemakers in the VDD group.

At time of implantation:

The mean values of mean P-wave amplitude, atrial sensing threshold, atrial lead impedance, and % of AV synchrony were 3.42 ± 1.1 mV; 3.46 ± 1.3 mV; $568 \pm 103.42 \Omega$; $95\% \pm 7\%$ respectively in DDD group, while they were 2.91 ± 1.3 mV; 2.46 ± 1.18 mV;