

## Immediate and Mid-Term Safety and Efficacy of Single Lead VDD Pacemakers for Patients with Atrioventricular Block and Normal Sinus Node Function—A Single Centre Experience

J L Tan,<sup>\*MBBS, MRCP (UK)</sup>, L F Hsu,<sup>\*\*MBBS, MRCP (UK)</sup>, R M L Kam,<sup>\*\*\*FAMS, MBBS, FRCP (Edin)</sup>, W S Teo,<sup>\*\*\*FAMS, FRCP (Edin), FACC</sup>

### Abstract

**Introduction:** Single lead atrial synchronous ventricular pacing (VDD) is increasingly being used in place of conventional dual chamber pacing (DDD) for patients with atrioventricular block and preserved sinus node function. Compared to the latter, VDD pacemakers provide similar haemodynamic benefits derived from atrial synchronous pacing, with the added benefit of an easier implant procedure. **Objective:** To review the use, safety and efficacy of VDD pacing in a single tertiary referral centre. **Materials and Methods:** A review of all patients with atrioventricular block and normal sinus node function implanted with a VDD pacemaker over a 2-year period at a local tertiary cardiac referral centre. Data on complications, atrial sensing performance and maintenance of atrioventricular synchrony during implant and at subsequent follow-up visits were obtained from a prospectively maintained registry and analysed. **Results:** Forty-one patients (17 males, 24 females) with a mean age of  $72 \pm 9$  years received VDD pacing for various forms of high-grade atrioventricular block. The average implantation time was  $46.8 \pm 17.1$  minutes, and a pneumothorax in 1 patient was the only complication. Electrical measurements at implantation and subsequent follow-up visits revealed an initial rapid decrease in atrial signal amplitude (mean atrial P wave at implant  $3.1 \pm 1.1$  mV, pre-discharge  $1.9 \pm 1.3$  mV) which began to stabilise after 3 months, reaching a mean atrial P wave value of  $1.3 \pm 0.3$  mV at 24 months. The atrial sensing performance (percentage of atrial synchronous ventricular complexes) was 97% over a mean follow-up period of 9.9 months. Four patients (10%) developed paroxysmal atrial tachyarrhythmias. Sinus node dysfunction was not observed in any of our patients during the follow-up period. **Conclusion:** In patients with atrioventricular block and preserved sinus node function, single lead VDD pacing is safe and effective in maintaining a physiological atrial synchronous pacing mode.

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**Key words:** Atrial synchronous pacing, Atrioventricular block, Pacemaker, VDD pacing

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\* Registrar

\*\* Associate Consultant

\*\*\* Senior Consultant

Department of Cardiology

National Heart Centre

Address for Reprints: Dr Teo Wee Siong, Department of Cardiology, National Heart Centre, Mistri Wing, 17 Third Hospital Avenue, Singapore 168752.

E-mail: TEO\_Wee\_Siong@nhc.com.sg