[gw22-e0421]

INTERVENTRICULAR DELAY INTERVAL OPTIMISATION IN CARDIAC RESYNCHRONISATION THERAPY GUIDED BY ECHOCARDIOGRAPHY VERSUS ELECTROCARDIOGRAPHIC

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10.1136/heartjnl-2011-300867.503

Aim To correlate the optimal V-V pacing interval obtained by echo with the optimal V-V interval obtained by two methods based on the surface ECG.

Methods and results 36 patients with a cardiac resynchronisation therapy device for >3 months were enrolled. V-V optimisation was performed by measuring the aortic velocity time integral (VTI). Five V-V intervals were tested: LV preactivation at -30 ms, -60 ms, simultaneous biventricular pacing (0 ms), and RV preactivation at +30 ms, +60 ms. The one that achieved the highest VTI was chosen as the optimal V-V. This result was performed by two different ECG measurements. The first ECG method considered the best V-V to be that which achieved the narrowest QRS. The second V-V method consisted of measuring the interval from the pacing spike to the beginning of the fast deflexion of the QRS complex in leads V1, V2, first pacing from the LV (T1), and after from the RV (T2). The T2-T1 interval was considered as a surrogate measurement of V-V delay and defined as the best V-V. Optimal V-V interval obtained by echo was -60 ms in eight patients (22%), -30 ms in 16 patients (45%), +30 ms in three patients (8%), +60 ms in one patient (3%) and 0 ms in the remaining eight patients (22%). Echo results had 65% coincidence with the first ECG method ($r=0.60$, $p<0.01$) and 87% coincidence with the second ECG method ($r=0.82$, $p<0.001$). Furthermore, 93% coincidence with both the two ECG methods ($r=0.90$, $p<0.0001$).

Conclusions Combining the two different ECG methods could get a good correlation with the V-V optimisation chosen according to echo.