Para-hisian pacemaker implantation technique guided by Synchromax method

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Introduction: Increasing advance in the last decades was presented in cardiac stimulation. Current devices use new technologies. Conventional cardiac stimulation solves electrical disorder but electrical dys synchrony can be generated. When heart failure is generated a device upgrade is needed. Para-hisian stimulation generates a physiological cardiac activation through normal conduction system. Sheaths, special leads and different devices are used with current techniques. We developed an implantation technique guided by electric synchrony using conventional screw-in leads. Synchromax is a device used to evaluate cardiac electrical synchrony. It is easy to understand, fast to obtain, non-invasive and reproducible. Synchromax was analyzed in previous studies and correlated with other methods.

Objective: Usefulness and safety evaluation of para-hisian pacemaker implantation guided by Synchromax method using conventional screw-in leads.

Materials and Methods: 236 patients were evaluated in two institutions in Argentina. All patients had indication of ventricular stimulation. Synchromax study was performed during the device implantation in all patients. Synchrony index and curves were analyzed. Type 2 curve and index between 0,1 and 0,4 were considered synchronous. Type 8 curve and index more than 0,7 were considered dis synchronous. Attempts numbers, thresholds and dislodgment were analyzed.

Results: Mean age 63 years (±6 years). 72,1% males. Sick sinus syndrome was the main aetiology. Conventional screw-in leads were used in all cases. An implantation technique was designed. A J-shaped curve is performed with the styllet and a small curve is formed at the tip perpendicular to the first one. On average 2,3 attempts were made. Thresholds were adequate. On average 1,3 mV. Only one ICD lead dislodgment was evidenced. Type 2 curve and index under 0,4 was obtained in all cases.

Conclusions: Para-hisian pacemaker implantation guided by Synchromax method using conventional screw-in leads is safe and useful achieving a physiological stimulation. Only a few attempts were needed with this new technique. Thresholds were similar to those used in conventional technique.