Non-selective para-hisian stimulation used for QRS normalization guided by non-invasive electrical synchrony method in patients with electrical conduction disorders

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Topic(s):
Antibradycardia Pacing

Introduction: Para-hisian stimulation produces a physiological cardiac activation through normal conduction system. Frequently it is used in patients with no electrical conduction disorders. We developed an implant technique guided by non-invasive electrical synchrony using conventional screw-in leads. Non-selective para-hisian stimulation can normalize electrical conduction disorders. Synchromax is a novel device used to evaluate non-invasive 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: Evaluate usefulness and safety of non-selective para-hisian stimulation guided by non-invasive cardiac electrical synchrony method using conventional screw-in leads to normalize electrical conduction disorders.

Materials and Methods: 421 patients with para-hisian stimulation were analyzed retrospectively. 139 patients had different intraventricular and auriculo-ventricular electrical disorders. Non-selective para-hisian stimulation guided by no-invasive electrical synchrony method (Synchromax) was performed in all cases. Synchrony index and curves were analyzed according curves chart. 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 dyssynchronous.

Results: Mean age 71 years (±7 years). 65.4% males. 30.9% had 2º and 3º grade AV block associated. Patients were divided in 5 groups:
1-Right bundle branch block (RBBB): 43 patients
2-Left bundle branch block (LBBB): 33 patients
3-Brugada Syndrome: 8 patients
4-Left anterior hemi-block (LAHB) 30 patients.
5-RBBB associated with LAHB: 25 patients.
QRS normalization was achieved in 87% of the cases using non-selective para-hisian stimulation guided by Synchromax with conventional screw in leads. A ventricular approach was performed during implantation. Electrical synchrony was not solved in 13% of patients mostly in LBBB and RBBB associated with LAHB. Two dislodgments were evidenced.

Conclusions: Non-selective para-hisian stimulation guided by Synchromax method using conventional screw in leads solved most of intraventricular electrical disorders. It is also safe to use in patients with auriculo-ventricular electrical disorder.
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