

Role of sugammadex in intraoperative phrenic nerve monitoring during cryoablation procedure

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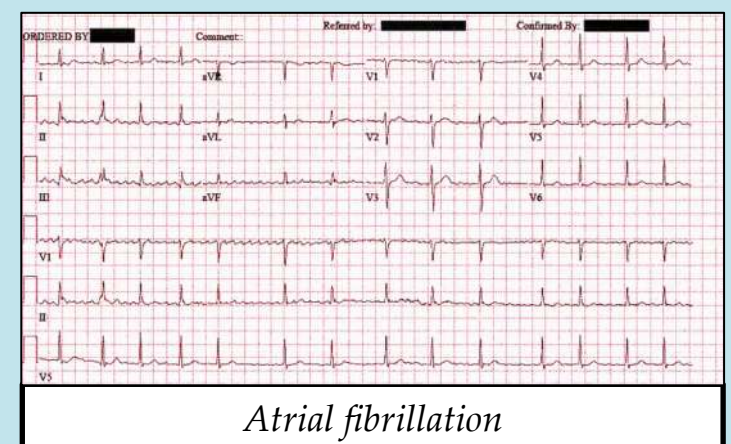
“The role of sugammadex for monitoring phrenic nerve during cryoablation procedure, minimizing phrenic nerve paralysis”

Case Report:

A 35-year-old, 75kg man with paroxysmal atrial fibrillation and otherwise healthy, was transferred to our hospital for cryoablation procedure.

The surgery was performed under general anesthesia, TIVA modality with propofol and remifentanyl, we proceed to induction with these drugs followed by 45 mg EV of rocuronium. 30 minutes later, when a proper phrenic nerve stimulation was required and with the assesment of train-of-four monitoring, we administered 70 mg EV of sugammadex, reversing neuromuscular blockage.

The surgery was uneventful finishing 90 minutes later. We provided analgesia with paracetamol and metamizol regarding that cryoablation is less painful than radiofrequency ablation.



Discussion:

Cryoablation is an energy alternative to radiofrequency for ablation of various arrhythmias, where its unique biophysical properties offer a greater safety profile and an effective source in the long-term. Phrenic nerve paralysis is the most frequent complication during cryoballoon ablation, occurring in 7%-9% of the cases, however, this is reversible in nearly all cases(1). Better phrenic nerve monitoring during right-sided pulmonary vein ablation and less vigorous wedging maneuvers in the pulmonary vein ostia might reduce this complication(2).

We have not found any recent literature regarding the use of sugammadex in this context. In our case sugammadex provided excellent conditions for an adequate stimulation of the phrenic nerve and it could decrease the risk of phrenic nerve paralysis without any adverse effect.

Learning points:

- Cryoablation, with its unique biophysical properties is a valuable alternative to radiofrequency for ablation of various arrhythmias
- Phrenic nerve paralysis is the most frequently observed complication during cryoballoon ablation
- Sugammadex provides excellent conditions for an adequate stimulation of the phrenic nerve, minimizing the risk of paralysis and without any adverse effect

References:

1. Gonzalez J, et al (2015): Crioablación: aplicaciones clínicas en la electrofisiología cardiaca a partir de sus bases biofísicas. *Arch Cardiol Mex*, DOI:10.1016/j.acmx.2015.09.008. 2. Casado-Arroyo R et al (2013): Phrenic nerve paralysis during cryoballoon ablation for atrial fibrillation: a comparison between the first- and second-generation balloon. *Heart Rhythm*, 2013 Sep;10(9):1318-24.