General anaesthesia during radiofrequency ablation of atrial fibrillation is associated with improved procedural characteristics but with similar long-term outcomes: a single center study

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Introduction: General anaesthesia (GA) or conscious sedation can be used during radiofrequency catheter ablation (RFCA) of atrial fibrillation (AF) based on physician's and patient's preference. Increasing number of centers include GA in their institutional protocols for RFCA of AF.

Purpose: The current study aims to compare real-world data on procedural characteristics, complication rate and procedural outcomes in patients undergoing RFCA of AF under GA or sedation at a single center.

Methods: A total of 167 patients (116 males, age 57.53 ± 9.78 years) with paroxysmal or persistent AF undergoing RFCA were studied retrospectively. Patients underwent RFCA under GA (108 patients, Group 1) provided by the anaesthesia team at our institution or under conscious sedation (59 patients, Group 2) guided by the operator using bolus doses of midazolam and fentanyl. We compared procedural time, fluoroscopy time, dose-area product (DAP), number of lesions and cumulative RF time between the two groups. We also analysed the complication rates and the long-term outcome in the two groups. Results are presented as mean ± SD or median (25th – 75th percentile).

Results: Groups 1 and 2 were comparable in terms of baseline clinical characteristics. Group 1 patients demonstrated significantly shorter procedural time as compared to Group 2: 149.52 ± 41.31 min vs. 208.23 ± 77.10 min, P < 0.0005. Fluoroscopy time was also shorter in Group 1 24 (20-31.75) min compared to 36 (22.5-46.5) min in Group 2, P < 0.0001. This corresponded to lower radiation dose expressed by DAP which was also significantly lower in Group 1 patients: 3230 (1660-6793.2) cGy/cm2 vs. 13880 (4215-21324) cGy/cm2 for Group 2, P < 0.0001. Administration of GA during the procedure was associated with lower number of RF applications: 52.49 ± 19.36 in Group 1 vs. 68.33 ± 30.74 in Group 2, P = 0.0001. This corresponded with the lower cumulative RF time noted in the patients from Group 1: 2499.2 ± 824.17 sec vs. 3220 ± 1357.26 sec in Group 2, P < 0.0001. Procedural complications occurred in 5 patients from Group 1 (4.6%) and in 8 patients (13.6%) in Group 2, P = 0.066. There was a single case of atrioesophageal fistula in a patient from Group 1. After a median follow-up of 20 (8-41) months 75% of the patients from both Group 1 and Group 2 were arrhythmia-free following 1.5 ± 0.68 procedures (P = 1.0).

Conclusion: Performing RFCA of AF under GA is associated with shorter procedural time, lower radiation dose and with the need for less energy application. This does not result in significantly lower complication rates. Long-term procedural outcomes do not seem to be affected by the use of GA.