





Atrial fibrillation and electrocardioversion: a single-center retrospective analysis

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Introduction: Atrial fibrillation (AF) is one of the most common arrhythmia in clinical practice. Apart from pharmaceutical, one of the most successful methods for achieving sinus rhythm is electrocardioversion (ECV). Although we can quickly achieve sinus rhythm with ECV, maintaining it is a challenge. Data from the literature suggest that there are certain predictors associated with the recurrence of AF, such as the duration of AF and long-standing arterial hypertension¹. Recurrence usually does not occur within 24 hours of cardioversion². An early catheter ablation strategy may potentially reduce the recurrence of AF^{3,4}. We made a retrospective analysis of patients who underwent successful ECV through the emergency hospital admission and the Cardiology Day Hospital at the General Hospital "Dr. Josip Benčević". *Aim:* To determine the relationship between gender, left ventricular ejection fraction, use of antiarrhythmic drugs, and comorbidities with recurrence of AF after successful ECV.

Patients and Methods: We used data from the hospital information system according to the ECV procedure performed from January 1, 2021 to December 31, 2022. Age, gender, use of antiarrhythmic (amiodarone/dronedarone), left ventricular ejection fraction, and recurrence of AF were analyzed. Categorical variables were analyzed with Fisher's exact test, while numerical variables underwent Student's t-test with Mann Whitney U test for correlation. $P < 0.05$ was considered statistically significant.

Results: In the study, 91 patients participated, including 64 (70.3%) males and 27 (29.7%) females. The median age was 66 years with an interquartile range of 58 to 73 years. Out of the total, 39 (42.9%) patients experienced a recurrence, while 52 (57.1%) did not. There was no correlation between patient age and recurrence (median age at recurrence 66, IQR 60-74 vs without recurrence 67.5, IQR 58-73; $p = 0.6$, Mann Whitney U test). We did not find statistically significant differences according to gender, left ventricular ejection fraction, use of antiarrhythmics, and comorbidities (**Figure 1, 2, 3, and Table 1**).

Conclusion: Although ECV is a successful method for achieving sinus rhythm, it does not predict or affect its maintenance. Therefore, it is necessary to consider a catheter ablation strategy as early as possible.

TABLE 1. Display of recurrence depending on comorbidities.

| Comorbidities | Number (%) | | | p* |
|--------------------------|------------|----------|-----------|------|
| | Yes | No | Total | |
| Arterial hypertension | 29 (74.4) | 39 (75) | 68 (74.7) | >0.9 |
| Chronic kidney disease | 5 (12.8) | 3 (5.8) | 8 (8.8) | 0.3 |
| Dyslipidemia | 21 (53.8) | 30(57.7) | 51 (56) | 0.8 |
| Coronary artery disease | 7 (17.9) | 8 (15.4) | 15 (16.5) | 0.8 |
| Type 2 diabetes mellitus | 6 (15.4) | 7 (13.5) | 13 (14.3) | >0.9 |

* Fisher's Exact Test

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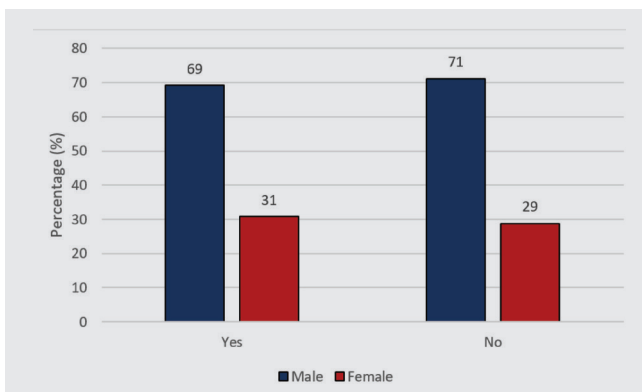


FIGURE 1. The recurrence depending on gender. No statistically significant difference was observed ($p>0.9$, Fisher's Exact Test).

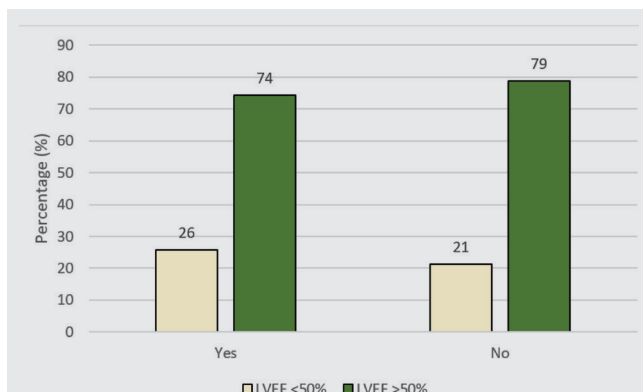


FIGURE 2. Recurrence based on left ventricular ejection fraction (LVEF). No statistically significant difference was detected ($p=0.8$, Fisher's Exact Test).

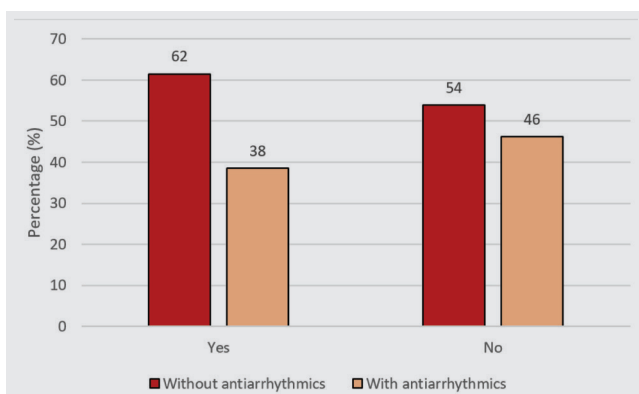


FIGURE 3. Illustration of recurrence based on the use of antiarrhythmics following electrical cardioversion. No statistically significant difference was detected ($p=0.5$, Fisher's Exact Test).

LITERATURE

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