REUE | Original Article

Supraventricular arrhythmias in the emergency department: experience of a Latin American cardiovascular hospital

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BACKGROUND AND OBJECTIVE. Tachyarrhythmias are a common reason for emergency department (ED) visits. This study aimed to describe the clinical profile of patients with tachyarrhythmias and their association with recurrences of supraventricular tachycardia (SVT), as well as their condition and destination on discharge.

MATERIALS AND METHODS. Observational cross-sectional study of 392 patients treated for SVT in a tertiary-care hospital ED over a period of 22 months. We used bivariate analysis to explore statistically significant differences ($P < .05$).

RESULTS. The median patient age was 60 years and over half (55%) were women. A majority of patients (n = 258, 66%) had no history of cardiovascular disease; these patients had a lower risk of recurrence (odds ratio [OR], 0.34; 95% CI, 0.20-0.59, $P < .001$). Sixty-seven patients (17.1%) experienced a recurrence of SVT, and 28% had a history of atrial fibrillation, which was the most common SVT (n = 192, 49%). High-sensitivity troponin levels were higher in patients with recurrences (29 ng/mL *vs* 26 in patients with no recurrences ($P = .02$). Adenosine (n = 69, 18%) and amiodarone (n = 81, 21%) were the most common initial treatments. Treatment with amiodarone on discharge was associated with risk of recurrence (OR, 2.52; 95% CI, 1.28-4.81, $P = .006$). Not having a prior diagnosis of cardiovascular disease was protective against death (OR, 0.08; 95% CI, 0.02-0.35; $P < .001$).

CONCLUSIONS. Atrial fibrillation was the most common tachyarrhythmia treated in our ED. A prior history of cardiovascular disease was associated with higher risk of recurrence in this study of the incidence and recurrence of SVT in an ED specializing in the treatment of cardiovascular disease.

Keywords: Tachyarrhythmia. Tachycardia, supraventricular. Emergency department.

Arritmias supraventriculares en el Departamento de Emergencias: la experiencia de un centro cardiovascular de Latinoamérica

OBJETIVOS. Las taquiarritmias son causa frecuente de consulta en el Departamento de Emergencias (DE). El objetivo de este estudio es describir el perfil clínico y su asociación con la recurrencia de taquicardia supraventriculares (TSV), así como con el diagnóstico de egreso.

MATERIAL Y MÉTODOS. Se realizó un estudio tipo observacional, transversal que contó con 392 pacientes con TSV en el DE de un centro de tercer nivel durante 22 meses.

RESULTADOS. La mediana de edad fue de 60 años, el 55% de los pacientes fueron mujeres. El 66% no tenían antecedente de enfermedad cardiovascular (CV), relacionado ésto con menor riesgo de recurrencia (OR 0,34, IC 95%: 0,20-0,59, p < 0,001). La recurrencia de TSV se presentó en 67 pacientes (17,1%); 28% de los pacientes tenían antecedente de fibrilación atrial (FA), resultando también la TSV más frecuente (n = 192, 49%). El grupo con recurrencia presentó valores de troponina de alta sensibilidad más elevados comparado con aquellos sin recurrencia (26 *vs* 29 ng/mL, p = 0,02). El tratamiento inicial más frecuente fue adenosina (n = 69, 18%) y amiodarona (n = 81, 21%). Esta última al egreso, se asoció a riesgo de recurrencia (OR 2,52, IC 95%: 1,28-4,81, p = 0,006). El hecho de no tener enfermedad CV previa, fue un factor protector contra la muerte (OR 0,08, IC 95%: 0,02-0,35, p < 0,001).

CONCLUSIONES. La FA fue la taquiarritmia más frecuente en el DE. El contar con CD previa se relacionó a mayor riesgo de recurrencia.

Palabras clave: Taquiarritmias. Taquicardia supraventricular. Departamento Emergencias.

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Article Information: Received: 23-12-2023. Accepted: 25-3-2024. *Online:* 11-4-2024.
Editor in Charge: Fernando Rosell Ortiz.

Introduction

Tachyarrhythmias are characterized by a heart rate (HR) ≥ 100 beats per minute (bpm) due to an intrinsic rhythm disturbance. They are usually classified according to the site of origin: those arising above the His bundle are known as supraventricular tachycardias (SVT), while those originating below it are called ventricular tachycardias (VT).[1-3] Various factors may contribute to their occurrence, such as underlying cardiac disease (CD)—either structural or electrical—metabolic, endocrine, or electrolyte disturbances, medications, or the use of exogenous/toxic substances.

The incidence rate of SVT has been reported as 2.25 cases per 1,000 inhabitants per year, generally with a benign course. However, this incidence may be two to three times higher due to its sporadic and self-limiting nature, which often makes documentation difficult.[3] Among SVTs, from most to least frequent, are atrial fibrillation (AF), atrial flutter (AFl), atrioventricular reentrant tachycardia (AVRT), and atrioventricular nodal reentrant tachycardia (AVNRT), the latter being more common in women.[4,5] Data from the Mexican Cardiovascular Data Registry (REMECAR) showed a prevalence of AF of 5.7% among individuals over 45 years of age, similar to data from the Global Burden of Disease (GBD).[7] In contrast, VT is associated with prior cardiovascular disease (CVD) and confers a greater risk of sudden cardiac death (SCD); up to 300,000 annual deaths in the U.S. are attributed to this cause.[8]

Because of the morbidity and mortality associated with these pathologies, both in acute and chronic settings, and the limited epidemiological data available—particularly at the local level—this study was conducted. The primary endpoint was to evaluate the association of clinical factors with SVT recurrence and discharge status. Secondary objectives included estimating the prevalence of SVT, its relationship with any prior cardiovascular disease or SVT, as well as the type and recurrence of SVT. Additionally, discharge condition and any relationship between SVT and previous CVD were analyzed.

Materials and methods

We conducted a cross-sectional, observational study at a tertiary referral center, the *Instituto Nacional de Cardiología "Ignacio Chávez"* in Mexico City, Mexico, which functions as both a local and national referral center. Data were collected from medical records of patients presenting to the Emergency Department (ED) from January 1st, 2021 through October 31st, 2022. Patients were selected whose discharge diagnosis, according to ICD-10 coding, included the terms tachycardia, palpitations, AF, AFl, SVT, or arrhythmia (for this study, SVT referred to any tachyarrhythmia originating above the His bundle other than AF or AFl). Inclusion criteria were age ≥ 18 years and HR ≥ 130 bpm on the initial electrocardiogram. Exclusion criteria included patients with ICD-10 discharge diagnoses matching the above terms but without meeting the HR criterion, as well as those diagnosed with VT or ventricular fibrillation (VF). A database was created including identification, demographic (sex, age), and clinical data; comorbidities such as hypertension, diabetes mellitus, dyslipidemia, and chronic kidney disease; prior CVD (ischemic, congenital, valvular, or other); previous diagnoses of AF, AFl, SVT, or other arrhythmias; and clinical and laboratory data (hemoglobin, creatinine, serum sodium, potassium, chloride, lactate, high-sensitivity cardiac troponin T [hs-cTnT], and N-terminal pro–B-type natriuretic peptide [NT-proBNP]). Immediate treatment was recorded as nonpharmacologic (vagal maneuvers or none) or pharmacologic, including beta-blockers (BB), adenosine, calcium channel blockers (CCB), digitalis (digoxin), or amiodarone, along with discharge treatment and disposition (discharge home, transfer, hospital admission, or death).

Statistical analysis

All data were entered into a Microsoft Excel 2019 digital sheet. Quantitative variables were described using median and interquartile range (IQR) for nonparametric data or mean ± standard deviation for parametric data. Distribution was assessed with Shapiro–Wilk and Levene's tests. Differences across continuous variables were analyzed using the Wilcoxon test (for recurrence) and Kruskal–Wallis test (for discharge condition). Qualitative variables were described using absolute and relative frequencies. Fisher's exact test or chi-square test was used to compare categorical variables depending on distribution. Odds ratios (OR) were estimated using univariable logistic regression to assess associations with recurrence. A multivariable logistic regression model was used to evaluate associations between prior CVD and the type of arrhythmia diagnosed during the event. Predictors were tested for linearity and homoscedasticity, and model diagnostics included residual normality assessment. A P value < .05 was considered statistically significant. Statistical analysis was performed using R software (version 4.3.1) and RStudio.

Results

Among 2,291 ED visits during the study period with compatible ICD-10 discharge diagnoses, 1,899 were excluded for not meeting inclusion criteria, leaving 392 cases for analysis (Figure 1).

Association between clinical characteristics and SVT recurrence

Clinical characteristics and their distribution relative to recurrence are shown in Table 1. Of 392 patients, 67 (17.1%) experienced one or more recurrences during follow-up. The median age was 60 years (IQR, 48–73), similar between groups. The female-to-male ratio was comparable, with 215 women (55.0%). A past medical history of CVD conferred a higher recurrence risk (OR, 2.9, 95% CI, 1.70–4.99; P < .001), present in 134 subjects (34.0%). Congenital heart disease provided the greatest risk (OR, 3.97, 95%CI, 1.91–8.11; P < .001). Nearly half of patients (n = 149, 49.0%) had a prior arrhythmia, most commonly AF (n = 108, 28.0%). Those without arrhythmia history had a 58.0% lower recurrence risk (OR, 0.42, 95% CI, 0.24–0.72; P < .002). Of laboratory variables, only NT-proBNP

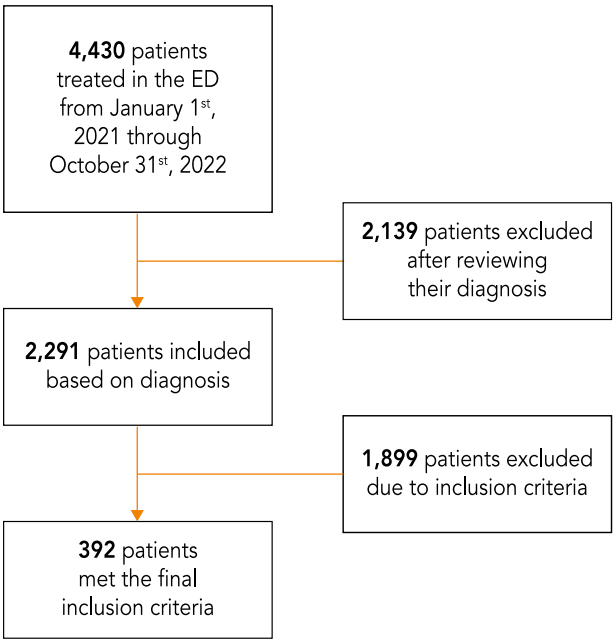

Figure 1. Patient selection flowchart.
ED: Emergency Department; ICD-10: International Classification of Diseases, 10th Revision.

showed statistical significance (*P* = .030) but had a neutral association (OR, 1.0, 95% CI, 1.0).

The most frequent arrhythmia diagnosed was AF (192 cases, 49.0%), followed by SVT (105 cases, 27.0%). The most common initial treatment was digitalis (n = 134, 34.0%), followed by BB (n = 85, 22.0%). Up to 18.0% of patients received no pharmacologic treatment, associated with a lower recurrence risk (OR, 0.32, 95% CI, 0.11–0.75; *P* = .018). The most frequent discharge condition was home discharge (n = 259, 66%). Eight patients (2.0%) died during the index event. The most common discharge medication was BB (n = 212, 54.0%). Only 12 patients (3.1%) underwent advanced interventions (pacemaker or ablation). Up to 80 patients (20.0%) received no outpatient treatment, also associated with a lower recurrence risk (OR, 0.33, 95% CI, 0.12–0.75; *P* = .014).

Use of amiodarone was linked to a 2.5-fold higher recurrence risk (OR, 2.52, 95% CI, 1.28–4.81; *P* = .006), similar to those discharged on digoxin (OR, 2.22, 95% CI, 1.23–3.92; *P* = .007).

Frequency of previous CVD in patients diagnosed with SVT

The relationship between arrhythmia history and prior CVD among patients with current arrhythmia diagnosis is shown in Table 2. AF was the most common SVT, occurring in 44.0% of those with prior AF (n = 84) and 48.0% of those without (n = 90).

Relationship between clinical characteristics and discharge condition

This relationship is shown in Table 3. Neither age nor sex were significantly associated with discharge status; however, prior CVD was. Data were available for 224 patients, as this information was missing in others. Among those with congenital heart disease, the most frequent discharge condition was outpatient follow-up (n = 19, 28%), similar to those with valvular disease (n = 17, 25%), whereas most without prior disease were discharged home (n = 229, 88%). Median hs-cTnT levels were higher in patients who died (26 ng/mL, IQR 14–59), similar to NT-proBNP (IQR 3,223–13,839). No patient with SVT died. No significant differences were found in initial treatment or discharge condition regarding the use of BB or CCB.

Association between prior CVD, type of arrhythmia, and discharge condition

This association is shown in Table 4. Prior congenital (OR, 28.4, 95% CI, 3.99–202.47; *P* = .008) and valvular heart disease (OR, 38.16, 95% CI, 6.7–217.19; *P* < .001) were strongly associated with death. Conversely, absence of prior CVD reduced the risk of any discharge condition other than home discharge. Patients diagnosed with SVT were 78.0% less likely to be hospitalized (OR, 0.22, 95% CI, 0.09–0.52; *P* = .007) and 71.0% less likely to require outpatient follow-up (OR, 0.29, 95% CI, 0.14–0.62; *P* = .0012). Diagnosis of AF conferred the highest risk of death (OR, 8.5, 95% CI, 1.03–70.16; *P* = .0468).

Discussion

This study of 392 patients treated at a specialized cardiology center included 325 individuals (82.9%) who did not experience recurrence during the observation period. The median age was 60 years, similar to that reported by Raghart *et al.*[5], whose mean age was 59 years. The sex distribution was balanced, with women representing 55.0% of the sample, consistent with international data reporting an average age above 65 years and a slight female predominance.[9-11] In a London-based study, Sawhney *et al.*[12] found only 30.0% men, with a mean age of 50 years.

Among patients with a past medical history of arrhythmia, AF was the most frequent, associated with hypertension and diabetes mellitus. Massaro *et al.*[13] found a similar relationship in up to 50% of their patients with AF, consistent with our findings. Sawhney *et al.*[12] also reported that 34% of their cohort had a history of SVT, slightly lower than our finding (46.6%).

A history of congenital heart disease (CHD) proved to be the most relevant factor associated with SVT—a relationship well established since the earliest descriptions of this condition, with some series reporting up to 50% prevalence among specific conditions.[13] Several explanations have been proposed for this association, including structural and hemodynamic abnormalities as well as surgical repair–related factors.[14,15]

When comparing our data with those of Ragbar *et al.*,[5] the mean HR was approximately 150 bpm, similar in both studies. Although abnormalities in laboratory parameters (electrolytes, hemoglobin, acid-base balance) are known to contribute to arrhythmogenesis, no significant differences were observed in laboratory values between patients with

Table 1. Distribution of clinical data by recurrence and univariable association of each variable with recurrence

	Recurrence			Univariate association			
	Total N = 392 n (%)	No N = 325 n (%)	Yes N = 67 n (%)	*P*-value[1]	OR[2]	95%CI[2]	*P*-value
Age, median (IQR)	60 (48.73)	61 (48.74)	56 (42.71)	.11	0.99	0.97, 1.00	.078
Men	177 (45)	139 (43)	38 (57)	.041	1.73	1.02, 2.97	.042
Prior CV disease							
Prior congenital heart disease	37 (9.4)	22 (6.8)	15 (22)	< .001	3.97	1.91, 8.11	< .001
Prior ischemic heart disease	34 (8.7)	25 (7.7)	9 (13)	.13	1.86	0.79, 4.07	.13
Prior valvular heart disease	35 (8.9)	28 (8.6)	7 (10)	.6	1.24	0.48, 2.82	.63
Other prior heart diseases	36 (9.2)	29 (8.9)	7 (10)	.7	1.19	0.46, 2.71	.69
No prior heart disease	258 (66)	228 (70)	30 (45)	< .001	0.34	0.20, 0.59	< .001
Any prior heart disease	134 (34)	97 (30)	37 (55)	< .001	2.90	1.70, 4.99	< .001
Prior arrhythmia diagnosis							
AF	108 (28)	85 (26)	23 (34)	.2	1.47	0.83, 2.56	.18
AFl	27 (6.9)	18 (5.6)	9 (13)	.031	2.64	1.08, 6.03	.025
SVT	47 (12)	33 (10)	14 (21)	.014	2.33	1.14, 4.57	.016
Other arrhythmias	34 (8.7)	27 (8.3)	7 (10)	.6	1.28	0.50, 2.94	.58
No arrhythmia	190 (49)	169 (52)	21 (31)	.002	0.42	0.24, 0.72	.002
Any arrhythmia	202 (52)	156 (48)	46 (69)		2.37	1.37, 4.23	.002
Laboratory data							
hs-cTnT, median (IQR)	26 (14. 59)	29 (15. 78)	21 (12. 27)		0.98	0.96, 1.00	.071
NT-proBNP, median (IQR)	2.992 (884. 6.384)	3.212 (1.082. 6.989)	1.851 (319. 4.158)	.009	1.00	1.00, 1.00	.030
Arrhythmia diagnosed at index event							
AF	192 (49)	166 (51)	26 (39)	.067	0.61	0.35, 1.03	.069
AFl	55 (14)	40 (12)	15 (22)	.031	2.06	1.03, 3.93	.033
SVT	105 (27)	84 (26)	21 (31)	.4	1.31	0.73, 2.30	.36
Other arrhythmias	44 (11)	38 (12)	6 (9.0)	.5	0.74	0.27, 1.72	.52
Initial treatment							
Vagal maneuvers	46 (12)	42 (13)	4 (6.0)	.11	0.43	0.13, 1.11	.12
Adenosine	69 (18)	55 (17)	14 (21)	.4	1.30	0.65, 2.45	.44
Amiodarone	81 (21)	62 (19)	19 (28)	.088	1.68	0.91, 3.02	.090
CCB	35 (8.9)	28 (8.6)	7 (10)	.6	1.24	0.48, 2.82	.63
BB	85 (22)	69 (21)	16 (24)	.6	1.16	0.61, 2.13	.63
Digitalis	134 (34)	107 (33)	27 (40)	.2	1.38	0.80, 2.35	.25
EC	18 (4.6)	16 (4.9)	2 (3.0)	.7	0.59	0.09, 2.16	.49
None	71 (18)	66 (20)	5 (7.5)	.013	0.32	0.11, 0.75	.018
Disposition							
Discharged home	259 (66)	230 (71)	29 (43)	< .001			
Hospital admission	58 (15)	51 (16)	7 (10)		1.09	0.42, 2.50	.85
Outpatient follow-up	67 (17)	36 (11)	31 (46)		6.83	3.70.12.7	< .001
Death	8 (2.0)	8 (2.5)	0 (0)		0.00		.99
Discharge treatment							
BB	212 (54)	169 (52)	43 (64)	.072	1.64	0.96, 2.87	.074
CCB	12 (3.1)	8 (2.5)	4 (6.0)	.13	2.52	0.66, 8.25	.14
Amiodarone	52 (13)	36 (11)	16 (24)	.005	2.52	1.28, 4.81	.006
Class I-C antiarrhythmics	58 (15)	49 (15)	9 (13)	.7	0.87	0.38, 1.80	.73
Digitalis	85 (22)	62 (19)	23 (34)	.006	2.22	1.23, 3.92	.007
Advanced intervention (device, ablation)	12 (3.1)	9 (2.8)	3 (4.5)	.4	1.65	0.36, 5.69	.46
None	80 (20)	74 (23)	6 (9.0)	.011	0.33	0.12, 0.75	.014

[1]Wilcoxon rank-sum; Pearson chi-square; Fisher exact test with simulated p (2,000 replications), as applicable.
[2]OR: odds ratio; 95%CI: 95% confidence interval.
*Data only available for 136 individuals only; data not collected for the remainder.
**Data only available for 224 patients only; others lacked this record.
IQR: interquartile range; CV, cardiovascular; AF: atrial fibrillation; AFl: atrial flutter; SVT: supraventricular tachycardia; hs-cTnT: high-sensitivity cardiac troponin T; NT-proBNP: N-terminal pro–B-type natriuretic peptide; BB: beta-blocker; CCB: calcium channel blocker; EC: electrical cardioversion.

or without recurrence. While it is difficult to determine whether elevated cardiac biomarkers are a cause or consequence of tachyarrhythmia, their increase is known to correlate with higher short- and long-term event risk.[16] In a retrospective study of 514 patients with various types of SVT, Borkovich *et al.*[17] found that elevated high-sensitivity cardiac troponin T (hs-cTnT) was associated with increased adverse events. Although not the main focus of this study, measuring such biomarkers in patients with SVT may be useful for predicting recurrence risk.[18]

As expected, AF was the most frequent arrhythmia (n = 192, 49%), followed by SVT (n = 105, 27%), consistent with Rehorm *et al.*[10] Regarding initial management, only 46 patients (12%) received vagal maneuvers, despite a suc-

Table 2. Distribution of prior cardiovascular disease and previous arrhythmias in relation to current arrhythmia diagnosis

Prior CV condition	Current diagnosis of arrhythmia					
	Total N = 385 n (%)	AF N = 189 n (%)	AFl N = 51 n (%)	SVT N = 102 n (%)	Other arrhythmia N = 43 n (%)	*P*-value[1]
Congenital heart disease	37 (9.6)	12 (6.3)	13 (25)	9 (8.8)	3 (7.0)	.002
Ischemic heart disease	33 (8.6)	13 (6.9)	6 (12)	6 (5.9)	8 (19)	.059
Valvular heart disease	34 (8.8)	27 (14)	5 (9.8)	1 (1.0)	1 (2.3)	< .001
Other heart disease	36 (9.4)	21 (11)	9 (18)	1 (1.0)	5 (12)	< .001
None	253 (66)	119 (63)	19 (37)	85 (83)	30 (70)	< .001
AF	104 (27)	84 (44)	11 (22)	5 (4.9)	4 (9.3)	< .001
AFl	24 (6.2)	3 (1.6)	17 (33)	3 (2.9)	1 (2.3)	< .001
SVT	47 (12)	2 (1.1)	5 (9.8)	39 (38)	1 (2.3)	< .001
Other arrhythmia	34 (8.8)	12 (6.3)	5 (9.8)	9 (8.8)	8 (19)	.11
None	188 (49)	90 (48)	19 (37)	49 (48)	30 (70)	.015

[1]Pearson chi-square test; Fisher exact test with simulated *P*-value (based on 2,000 replications).
CV: cardiovascular; AF: atrial fibrillation; AFl: atrial flutter; SVT: supraventricular tachycardia.

cess rate of up to 54%, as shown in the REVERT trial.[19] These maneuvers are recommended for both SVT and VT, provided hemodynamic stability is maintained, according to European Society of Cardiology (ESC) guidelines for SVT management.[11] Among pharmacologic treatments, adenosine, which has a success rate of up to 90%, was used in 69 patients (18%), contrasting with other studies reporting use rates of up to 75%.[5] Although amiodarone and digoxin were associated with higher recurrence risk, this may reflect treatment bias, as these agents are often reserved for patients with more advanced cardiac disease, likely reflecting greater structural or functional compromise. Up to 71 patients (18%) were discharged without any medication—similar to Sawhney *et al.*[12] (30%)—and 67 (17%) were referred for outpatient follow-up, a smaller proportion than previously reported.[12] In the study by Diotallevi *et al.*,[20] which analyzed patients with atrial tachyarrhythmias in several emergency departments, up to 73% were discharged home. Only 58 individuals (14.5%) required hospitalization, and 8 (2.1%) died. Some authors have reported mortality rates < 1%, which may not occur during the index event, but certain SVTs (e.g., Wolff-Parkinson-White syndrome) or coexistence with other cardiac conditions can increase the risk of death. A Hong Kong emergency department study[21] showed that after successful stabilization, SVT patients could be safely discharged after 4 hours of observation with minimal 90-day recurrence risk.

Limitations

Because this was a retrospective, single-center study, the findings cannot be extrapolated to the general population. Additionally, due to factors beyond the investigators' control, long-term follow-up of patients was not possible.

Conclusions

In this study, most patients were older adults, with a similar proportion of men and women. The most common comorbidities were systemic hypertension and diabetes mellitus. Ischemic heart disease and AF were the most frequent cardiovascular antecedents. Vital signs and laboratory parameters were within expected ranges. AF remained the most frequently diagnosed arrhythmia, and BB were the most widely prescribed discharge treatment. Most patients did not experience recurrence.

These findings provide valuable insights into the behavior of tachyarrhythmias in a specialized cardiology center, offering new perspectives on their prevalence and recurrence, facilitating clinical decision-making, and encouraging further research to establish effective stratification strategies.

Table 3. Relationship between clinical characteristics and discharge condition

	Discharge status					
	Overall N = 39 n (%)	Discharged home N = 259 n (%)	Hospital admission N = 58 n (%)	Outpatient follow-up N = 67 n (%)	Death N = 8 n (%)	*P*-value[1]
Age [median (IQR)]	60 (48, 73)	61 (47, 74)	63 (51, 72)	55 (40, 71)	71 (51, 75)	.3
Men	177 (45)	116 (45)	21 (36)	37 (55)	3 (38)	.2
Prior CV disease						
Congenital heart disease	37 (9.4)	3 (1.2)	13 (22)	19 (28)	2 (25)	< .001
Ischemic heart disease	34 (8.7)	13 (5.0)	7 (12)	14 (21)	0 (0)	< .001
Valvular heart disease	35 (8.9)	4 (1.5)	11 (19)	17 (25)	3 (38)	< .001
Other heart disease	36 (9.2)	10 (3.9)	14 (24)	11 (16)	1 (12)	< .001
No CV disease	258 (66)	229 (88)	16 (28)	10 (15)	3 (38)	< .001
Any prior heart disease	134 (34)	30 (12)	42 (72)	57 (85)	5 (62)	< .001
Prior arrhythmia						
AF	108 (28)	41 (16)	22 (38)	40 (60)	5 (62)	< .001
AFl	27 (6.9)	5 (1.9)	5 (8.6)	16 (24)	1 (12)	< .001
SVT	47 (12)	32 (12)	5 (8.6)	10 (15)	0 (0)	.6
Other arrhythmias	34 (8.7)	21 (8.1)	10 (17)	2 (3.0)	1 (12)	.027
No prior arrhythmia	190 (48)	160 (62)	19 (33)	10 (15)	1 (12)	< .001
Any prior arrhythmia	202 (52)	99 (38)	39 (67)	57 (85)	7 (88)	< .001
HR [median (IQR)]	150 (140, 170)	153 (140, 172)	150 (140, 170)	150 (136, 160)	152 (148, 170)	.024
SBP [median (IQR)]	124 (110, 140)	130 (114, 144)	119 (98, 136)	118 (101, 130)	95 (80, 113)	< .001
DBP [median (IQR)]	79 (70, 89)	80 (70, 90)	72 (60, 81)	75 (70, 83)	58 (48, 70)	< .001
Cr* [median (IQR)]	1.03 (0.81, 1.27)	0.98 (0.77, 1.17)	1.16 (0.88, 1.45)	1.07 (0.87, 1.36)	1.37 (0.97, 1.92)	.006
Current arrhythmia diagnosis						
AF	192 (49)	117 (45)	32 (55)	36 (54)	7 (88)	.055
AFl	55 (14)	23 (8.9)	10 (17)	21 (31)	1 (12)	< .001
SVT	105 (27)	90 (35)	6 (10)	9 (13)	0 (0)	< .001
Initial treatment						
Vagal maneuvers	46 (12)	44 (17)	1 (1.7)	0 (0)	1 (12)	< .001
Adenosine	69 (18)	61 (24)	4 (6.9)	4 (6.0)	0 (0)	< .001
Amiodarone	81 (21)	30 (12)	29 (50)	19 (28)	3 (38)	< .001
Digitalis	134 (34)	75 (29)	24 (41)	33 (49)	2 (25)	.011
EC	18 (4.6)	6 (2.3)	8 (14)	1 (1.5)	3 (38)	< .001
Discharge treatment						
BB	212 (54)	134 (52)	33 (57)	45 (67)	0 (0)	.001
CCB	12 (3.1)	4 (1.5)	1 (1.7)	7 (10)	0 (0)	.011
Amiodarone	52 (13)	12 (4.6)	20 (34)	19 (28)	1 (12)	< .001
Class I-C antiarrhythmics	58 (15)	56 (22)	0 (0)	2 (3.0)	0 (0)	< .001
Digitalis	85 (22)	39 (15)	17 (29)	29 (43)	0 (0)	< .001
Advanced intervention (device, ablation)	12 (3.1)	1 (0.4)	8 (14)	3 (4.5)	0 (0)	< .001
None	80 (20)	62 (24)	5 (8.6)	6 (9.0)	7 (88)	< .001

[1]Kruskal-Wallis test; Pearson chi-square test; Fisher exact test with simulated p-value (based on 2,000 replications).
Cr: creatinine; IQR: interquartile range; CV: cardiovascular; AF: atrial fibrillation; AFl: atrial flutter; SVT: supraventricular tachycardia; HR: heart rate; SBP: systolic blood pressure; DBP: diastolic blood pressure; BB: beta-blocker; CCB: calcium channel blocker; EC: electrical cardioversion.

Table 4. Association of previous cardiovascular disease and type of current arrhythmia with discharge condition vs those discharged home

Previous CV condition	Discharge status								
	Hospital admission			Outpatient follow-up			Death		
	OR[1]	95%CI[1]	*P*-value	OR[1]	95%CI[1]	*P*-value	OR[1]	95%CI[1]	*P*-value
Congenital heart disease	24.62	6.75, 89.82	< .001	33.73	9.61, 118.39	< .001	28.42	3.99, 202.47	.008
Ischemic heart disease	2.60	0.99, 6.83	.0529	5.00	2.22, 11.26	< .001	0.02	0.0, 0.01	.7372
Valvular heart disease	14.90	4.55, 48.75	< .001	21.64	6.99, 67.00	< .001	38.16	6.70, 217.19	< .001
Any heart disease	7.92	3.31, 18.96	< .001	4.89	1.98, 12.08	< .001	3.56	0.40, 31.74	.2558
No heart disease	0.05	0.03, 0.10	< .001	0.02	0.01, 0.05	< .001	0.08	0.02, 0.35	< .001
Current diagnosis of arrhythmia									
AF	1.49	0.84, 2.65	.1696	1.41	0.82, 2.42	.2122	8.50	1.03, 70.16	.0468
AFl	2.14	0.96, 4.78	.0642	4.68	2.40, 9.16	< .001	1.47	0.17, 12.44	.7260
SVT	0.22	0.09, 0.52	.0007	0.29	0.14, 0.62	.0012	0.00	0.0, 0.01	.8446
Other types of arrhythmia	1.79	0.84, 3.81	.1341	0.36	0.11, 1.21	.0984	0.00	0.0, 0.01	.9077

[1]OR: Odds Ratio; CI: confidence interval; CV: cardiovascular; AF: atrial fibrillation; AFl: atrial flutter; SVT: supraventricular tachycardia.

ARTICLE INFORMATION

Conflict of Interest Disclosures: None reported.

Funding: The authors declare the non-existence of funding in relation to this article.

Ethical responsibilities: The authors have confirmed the maintenance of confidentiality and respect for the patient rights, agreement of publication, and transfer of rights to Revista Española de Urgencias y Emergencias.

Article not commissioned by the Editorial Board and with external peer review.

Note of the editors: This is a BOWMAN-generated English translation of the officially indexed Spanish-language article, which should be cited as Rev Esp Urg Emerg. 2024;3:77-83. In this translated version, the editors have supervised the process; however, it cannot be ruled out that some errors resulting from the artificial intelligence translation process may have gone unnoticed.

Acknowledgments: The authors thank the staff of the Emergency Department (ED) at the Instituto Nacional de Cardiología Ignacio Chávez, especially Dr. Alexandra Arias-Mendoza, head of the department. The authors also express gratitude to the OASIS Department staff for their collaboration.

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