Anticoagulation Management in Patients with Atrial Fibrillation in a Spanish Region: Results of the RUFIAN Registry

Original Article

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Abstract—Introduction: Analysis of the main characteristics of patients with Atrial Fibrillation treated and hospitalized in the Internal Medicine Services of the Community of the Canary Islands (Spain), as well as the management of anticoagulation based on their clinical profile. **Patients and methods:** Observational, prospective, regional study conducted in the Internal Medicine Services of the main public hospital in Gran Canaria (Spain). All nonvalvular Atrial Fibrillation (NVAF) patients attended in the Emergency Service and admitted in the Internal Medicine Service (2014-2016) were included in the RUFIAN registry. Routine clinical practice related to NVAF management was collected through the medical records and included in the registry database for study purposes. **Results:** The study sample was formed by 905 NVAF patients (12.8 % de novo). The mean age (SD) was 80.7 (8.2) years old (65.6 % ≤85 y-o), 52.9 % were male and 24.3 % had severe chronic kidney disease (CKD). Arterial hypertension and heart failure were the main comorbidities observed in NFAV patients (89.9 % and 77.7 %, respectively). Mean CHA2DS2-VASc was 4.8 (1.4) and HAS-BLED was 2.5 (1.2). During the Emergency visit, 56.9 % of the patients were anticoagulated and 41.2 % received antiplatelet therapy (59.9 % and 53.5 % in severe CKD patients, respectively). At hospital discharge, anticoagulation was 56.0 % and antiplatelet therapy decreased to the 35.4 % of the patients (44.8 % and 28.7 % in severe CKD patients, respectively). In-hospital mortality was 13.6 %, ranging from 11.1 % in patients <85 y-o, to 20.9 % in severe CKD patients. End-of-study mortality was 53.1 % (46.3 % in patients <85 y-o, up to 67.3 % in severe CKD patients). **Conclusion:** The antithrombotic strategies used in NVAF patients in our context are insufficient, being necessary to develop standardized protocols focused on the improvement of anticoagulation use and reduction of the mortality of these patients in routine clinical practice. **Rev Med Clin 2023;7(2):e17052307017.**

Keywords—Atrial fibrillation, Anticoagulants, Registries, Evidence-Based Practice, Spain

Resumen—Manejo de Anticoagulación en Pacientes con Fibrilación Auricular en la Comunidad Autónoma de Canarias: Resultados del Registro RUFIAN. Introducción: Análisis de las principales características de los pacientes con Fibrilación Auricular tratados y hospitalizados en los Servicios de Medicina Interna de la Comunidad de Canarias (España), así como el manejo de la anticoagulación. **Pacientes y métodos:** Estudio observacional, prospectivo y regional realizado en el principal hospital público de Gran Canaria (España). Todos los pacientes con Fibrilación Auricular No Valvular (FANV) atendidos en Urgencias e ingresados a Medicina Interna (2014-2016) fueron incluidos en el registro RUFIAN. La práctica clínica habitual relacionada con el manejo de la FANV se recopiló a través de las historias clínicas y se incluyó en la base de datos del registro con fines de estudio. **Resultados:** La muestra del estudio estuvo constituida por 905 pacientes con FAVN (12.8 % de novo). La edad media (DE) fue de 80.7 ± 8.2 años (65.6 % ≤85 años), el 52.9 % eran varones y el 24.3 % tenían enfermedad renal crónica (ERC) grave. La hipertensión arterial y la insuficiencia cardíaca fueron las principales comorbilidades observadas en los pacientes con VNF (89.9 % y 77.7 %, respectivamente). La media de CHA2DS2-VASc fue de 4.8 ± 1.4 y la de HAS-BLED de 2.5 ± 1.2. Durante la visita de urgencias, el 56.9 % de los pacientes estaban anticoagulados y el 41.2 % recibían antiagregación plaquetaria (59.9 % y 53.5 % en pacientes con ERC grave, respectivamente). Al alta hospitalaria, la anticoagulación fue del 56.0 % y el tratamiento antiagregante agregante plaquetario disminuyó al 35.4 % de los pacientes (44.8 % y 28.7 % en pacientes con ERC grave, respectivamente). La mortalidad intrahospitalaria fue del 13.6 %, oscilando entre el 11.1 % en pacientes <85 años y el 20.9 % en pacientes con ERC grave. La mortalidad al final del estudio fue del 53.1 % (46.3 % en pacientes <85 años, hasta 67.3 % en pacientes con ERC grave). **Conclusión:** Las estrategias antitrombóticas utilizadas en los pacientes con FAVN en nuestro contexto son insuficientes, siendo necesario desarrollar protocolos estandarizados enfocados a la mejora del uso de anticoagulantes y a la reducción de la mortalidad de estos pacientes en la práctica clínica habitual. **Rev Med Clin 2023;7(2):e17052307017.**

Palabras clave—Fibrilación auricular, Anticoagulantes, Registros, Práctica basada en la evidencia, España

INTRODUCTION

Atrial fibrillation (AF) is the most common clinically significant cardiac arrhythmia in patients from Western countries, being specially recurrent in elderly persons.[1,2] The prevalence of AF in the general Spanish population is high, being 4.4 % in population older than 40 years and rising with increasing age, what leads to a prevalence of 18 % in those patients who are more than 80 years old.[1] Due to increased life expectancy, the number of patients with AF is likely to increase 2.5-fold during the next 50 years.[3]

AF is considered one of the most severe diseases with impact on public health,,[4] being linked to a high impact in terms of morbidity and mortality.[5] The main clinical risk factors for AF include advanced age, together with other frequent comorbidities including hypertension, diabetes mellitus (DM), heart failure (HF), coronary artery disease (CAD), chronic kidney disease (CKD), obesity, and obstructive sleep apnea (OSA).[6] It has been suggested that AF is a risk "marker" for stroke and that the increased incidence in persons with this arrhythmia is a result of age and associated cardiovascular abnormalities.[7]

The main risk of AF is that circulatory stasis in the atrium can cause arterial embolism. In addition, AF is a relevant risk factor for arterial thromboembolic events, especially stroke development, associated with high mortality and morbidity and with a high risk of recurrence.[8] Around 30 % of AF patients have at least one related cardiovascular event, and 10 % have $\geq$2 hospital admissions annually.[6]

Focusing on nonvalvular Atrial Fibrillation (NVAF), the main European guidelines recommend antithrombotic therapy for the prevention of cardiovascular events (mainly stroke).[5,6] In this regard, the use of oral anticoagulants (OACs) is considered a pillar for the treatment of NVAF patients, including vitamin K antagonists (VKAs) and/or Direct-acting Oral Anticoagulant (DOACs), depending on patient profile.[5,6] DOACs have emerged as the preferred drugs for anticoagulation in NVAF patients, mainly due to an improved efficacy/safety ratio, a predictable anticoagulant effect without need for routine coagulation monitoring, and fewer food and drug interactions compared with VKAs.[9,10] However, the use of these drugs is not extendable to all NVAF patients, being necessary to consider local recommendations, as well as patient's profile, needs and preferences, by individualizing drug choice according to clinical criteria and routine clinical practice.[9,11]

Routine clinical practice of NVAF anticoagulation management could differ from the main clinical recommendations depending on the regions, hospitals and patient profiles considered.[8,10,12] In this regard, different registries have been conducted in order to assess the clinical management of AF patients according to the routine clinical practice in different countries, where local guidelines and recommendations could be applicable.[?] In the Spanish field, the FANTASIIA registry included data at national level from 2,178 patients, all of them being treated with OAC according to routine clinical practice (16). The registry was focused in the analysis of the patient profiles according to OAC type and outcomes achieved. However, it was not considered the variability that could exist due to regional access differences to these drugs, beyond the impact provided by the influence of functional and cognitive status, polypharmacy, bleeding risk, among other.[12,17]

The Canary Islands is a Spanish region formed by eight main islands and a main healthcare concentrated in Gran Canaria and Tenerife, which involves a coordinated and standardized healthcare attention involving all the regional population. From 2014, data of AF patients is being systematically collected through the RUFIAN registry (Unified Registry of atrial fibrillation in Gran Canaria), with the aim to know the clinical and therapeutic management of AF patients attended by the Internal Medicine Service according to the routine clinical practice in this region, with special focus on NVAF anticoagulation. The objective of this registry is to identify potential differences in the management of these patients according to key variables, such as age, comorbid situation or bleeding risk, among others, with the aim to identify improvement areas in the management of these patients, considering the particular needs of this region.

PATIENTS AND METHODS

Study Design

The RUFIAN registry (Unified Registry of atrial fibrillation in Gran Canaria) is an observational, retrospective study, conducted in the Internal Medicine Service of the main public hospital attending AF patients in Gran Canaria (Canary Islands, Spain). Between 2014 and 2016, all patients diagnosed with NVAF and attended by the Emergency Service of the Hospital and admitted in the Internal Medicine Service of the center, were consecutively included in the registry, with independence of the main reason for hospital admission. All the study variables were reviewed and extracted from the medical records of the included patients, according to the routine clinical practice in the hospital.

All data was collected though retrospective medical records review, being not needed to collect informed consent of the patients. The last data extraction was conducted at the end of 2017.

Study Population

The study population was formed by adult patients ($\geq$18 y-o) with diagnosed NVAF registered in the medical record, being attended by the Emergency Service of the hospital and admitted in the Internal Medicine Service (2014-2016), with independence of the visit initial reason. The review of the medical records was conducted consecutively including all

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	Total Population (n=905)	<85 years (n=594)	≥85 years (n=311)	Severe CKD (n=220)	Debut NVAF (n=116)
Gender (male); n(%)	479 (52.9)	352 (59.3)	127 (40.8)	112 (50.9)	60 (51.7)
Age (years); mean (SD)	80.7 (8.2)	76.5 (SD)	88.6 (3.3)	82.1 (8.1)	82.0 (8.0)
Age distribution; n (%)					
<85 years	594 (65.6)	594 (100)	-	-	-
≥85 years	311 (34.4)	-	311 (100)	-	-
≥90 years	49 (5.3)	-	-	-	-
Prior NVAF diagnosis; n (%)	789 (87.2)	523 (88.0)	266 (85.5)	202 (91.8)	-
Comorbidities; n (%)					
Arterial Hypertension	814 (89.9)	542 (91.2)	272 (87.5)	205 (93.2)	100 (86.2)
Heart Failure	703 (77.7)	439 (73.9)	264 (84.9)	169 (76.8)	46 (39.7)
Diabetes Mellitus	488 (53.9)	355 (59.8)	133 (42.8)	115 (52.3)	53 (45.7)
Chronic Kidney Disease	380 (42.0)	-	-	220 (100)	41 (35.3)
Ischemic Heart Disease	270 (29.8)	204 (34.3)	66 (21.2)	-	-
Stroke	145 (16.0)	-	-	-	-
Liver Disease	110 (12.2)	88 (14.8)	22 (7.1)	-	-
Cognitive Impairtment; n (%)	187 (20.7)	108 (18.2)	79 (25.4)	-	26 (22.4)
Barthel Index; Mean (SD)	76.9 (29.0)	-	-	74.0 (30.0)	77.0 (30.0)
CHA2DS2-VASc; Mean (SD)	4.8 (1.4)	4.8 (SD)	5 (SD)	-	-
CHA2DS2-VASc ≥2; n (%)	897 (99.1)	586 (98.7)	311 (100)	220 (100)	114 (98.3)
HAS-BLED	2.5 (1.2)	2.6 (SD)	2.5 (SD)	-	-

Table 1: Baseline socio-demographic and clinical profile of NVAF patients included in the RUFIAN registry (2014-2016). **Note:** CKD: Chronic Kidney Disease; NVAF: Non-valvular atrial fibrillation

patients fulfilling the selection criteria. Data extraction was conducted from hospital admission data, up to data extraction date (2017).

Study Variables

The study variables were defined by protocol and considered the main data needed for study purposes and according to the registry main objectives and planned analysis.

All study variables were collected from the patient's medical record, including: sociodemographic variables (gender, age), clinical variables (comorbidities, main diagnosis, treatment variables (anticoagulant or antiplatelet drug data) and scores that assess stroke risk (CHADS2Vasc), bleeding risk (HAS-BLED) and the patients' functional independence to perform activities of daily Living (Barthel Index). For patients treated with vitamin K antagonists (VKA), the International Normalized Ratio (INR) at the emergency visit was assessed.

Data collection was performed through an online anonymized base created for this purpose (RUFIAN Registry), which was specifically designed for the study and ensuring the anonymity, confidentiality, and safety protection of the reported data.

Data Analysis

All data analysis was conducted considering the routine clinical practice in Spain, as well as the guidelines and recommendations applicable for anticoagulation management of NVAF patients, included in the Spanish Therapeutic Positioning Report.[18]

All data were collected in an ad-hoc study file specifically designed for study purposes, extracted using Microsoft Excel software, to conduct data analysis. The statistical analysis was conducted considering descriptive purposes, including mean, standard deviation (SD), cases/patients (n) and percentage (%). No comparative analysis was planned due to sample limitations and the possibility to conduct different sub-groups analysis.

For study analysis purposes, it was used all data included in the registry database from September 2014 to December 2017.

Ethics Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the guidelines specified in Order SAS / 3470/2009 of the Agencia Española de Medicamentos y Productos Sanitarios (AEMPS) for the development of studies based on human subject data (applicable at the moment of Registry initiation, and currently updated currently updated to the Real Decreto 957/2020). The study was approved by the Ethics Committee for Research with Medicines of the Hospital Universitario de Gran Canaria Doctor Negrín (Spain) and, due to the retrospective data collection, patients informed consent was not necessary to be collected.

	Total Population (n=905)	<85 years (n=594)	≥85 years (n=311)	Severe CKD (n=220)	Debut NVAF (n=116)
Anticoagulant Therapy; n (%)	438 (56.0)	319 (60.4)	119 (46.9)	78 (44.8)	36 (35.0)
AVK	328 (74.9)	233 (73.0)	95 (79.8)	-	26 (72.2)
DOAC	92 (21.0)	74 (23.2)	18 (15.1)	-	5 (13.9)
LMWH	18 (4.1)	12 (3.8)	6 (5.0)	8 (10.3)	5 (13.9)
Antiplatelet Therapy; n (%)	277 (35.4)	185 (35.0)	92 (36.2)	50 (28.7)	64 (62.1)
No Treatment; n (%)	111 (14.2)	-	-	-	19 (18.4)

Table 2: Antithrombotic strategy in NVAF patients included in the RUFIAN registry (2014-2016) at hospital discharge. **Note:** CKD: Chronic Kidney Disease; NVAF: Non-valvular atrial fibrillation.

All the study data was retrospectively collected from the medical records, being the only data source for study purposes. All the data collected was completely dissociated from personal identification.

RESULTS

Sample Characteristics

During the study inclusion period (2014-2016), a total of 905 patients diagnosed with NVAF were included in the RUFIAN registry, most of them male (52.9 %) and with a mean (SD) age of 80.7 (8.2) years old. Most of the NVAF patients attended in the Emergency service were previously AF diagnosed patients (87.2 %) (Table 1). Although, most of the patients were aged <85 years (65.6 %), 48 patients aged over 90 years (5.3 %).

The most frequent comorbidity observed on NVAF patients was arterial hypertension, followed by heart failure, both involving around 80 % of the NVAF patients (Table 1). Other common disorders shown in NVAF patients were: Diabetes Mellitus (53.9 %), chronic kidney disease (42.0 %) and ischemic heart disease (29.8 %), among other (Table 1).

According to the CHA2DS2-VASc scale, most NVAF patients had a moderate-high risk for stroke, as well as a high risk of bleeding, measured by the HAS-BLED scale (Table 1).

Considering only patients with a debut NVAF (n=116, 12.8 %), it was observed a similar profile than patients with known NVAF (Table 1), except for cardiovascular comorbidities, such as heart failure, less prevalent in new diagnosed NVAF patients than in chronic (36.7 % vs 77.7 %).

Cognitive Status and Dependence

Patients' autonomy was measured according to the Barthel index, showing a moderate dependency level, in all patient groups, even though increasing according to age increase (Table 1).

Renal function in NVAF patients

Over the whole sample of patients (n=905), 380 (42.0 %) were diagnosed with chronic kidney disease (CKD). Renal impairment was considered as severe (Glomerular filtration rate <30mL/Kg/min^{-1}) for 220 of these patients (57.9 % of the CKD patients and 24.3 % of the total patients included in the registry).

Considering severe CKD patients (n=220), 112 (50.9 %) were male and in most cases (202; 91.8 %) were chronic NVAF patients. In agreement with the total sample, the most frequent comorbidities were hypertension (205; 93.2 %), heart failure (169; 76.8 %) and diabetes mellitus (115; 52.3 %). Barthel index was 74.0 (30.0), indicating moderate dependence of these patients (Table 1).

Antithrombotic management during the emergency visit

At the emergency visit moment, although 99.1 % of the patients showed a CHA2DS2-VASc ≥2, only 499 (55.1 % of the total NVAF patients) were treated with some anticoagulant drug, and 325 (35.9) with antiplatelet therapy. Considering only previously diagnosed NVAF patients, anticoagulation was established in 56.9 % of the patients and antiplatelet drugs were used in 41.2 % of the patients. With focus on severe CKD patients, only 121 (59.9 % of the diagnosed NVAF patients) were receiving some anticoagulation therapy at hospital admission, and 53.5 % received antiplatelet therapy.

AVK were the main oral anticoagulants used in NVAF population at hospital emergency visit (91.8 % of the anticoagulated patients), showing a mean (SD) INR of 4.1 (2.9). During the emergency visit, 358 patients had a valid INR value measured, being in the 2-3 range in 96 patients (26.8 %).

For debut NVAF patients, antiplatelet use was shown in 61 patients (52.6 %).

Antithrombotic management at hospital discharge

At hospital discharge, after the initial emergency visit and hospitalization in the Internal Medicine Service, 438 patients received anticoagulation therapy (56.0 %), being the main used drugs AVK (74.9 % of the total anticoagulated patients and 79.8 % of the anticoagulated patients aged ≥85 years) (Table 2). Antiplatelet therapy was used in 277 patients (35.4 %).

For debut NVAF patients (Table 2), anticoagulation was established at hospital discharge for 36 patients (35.0 %),

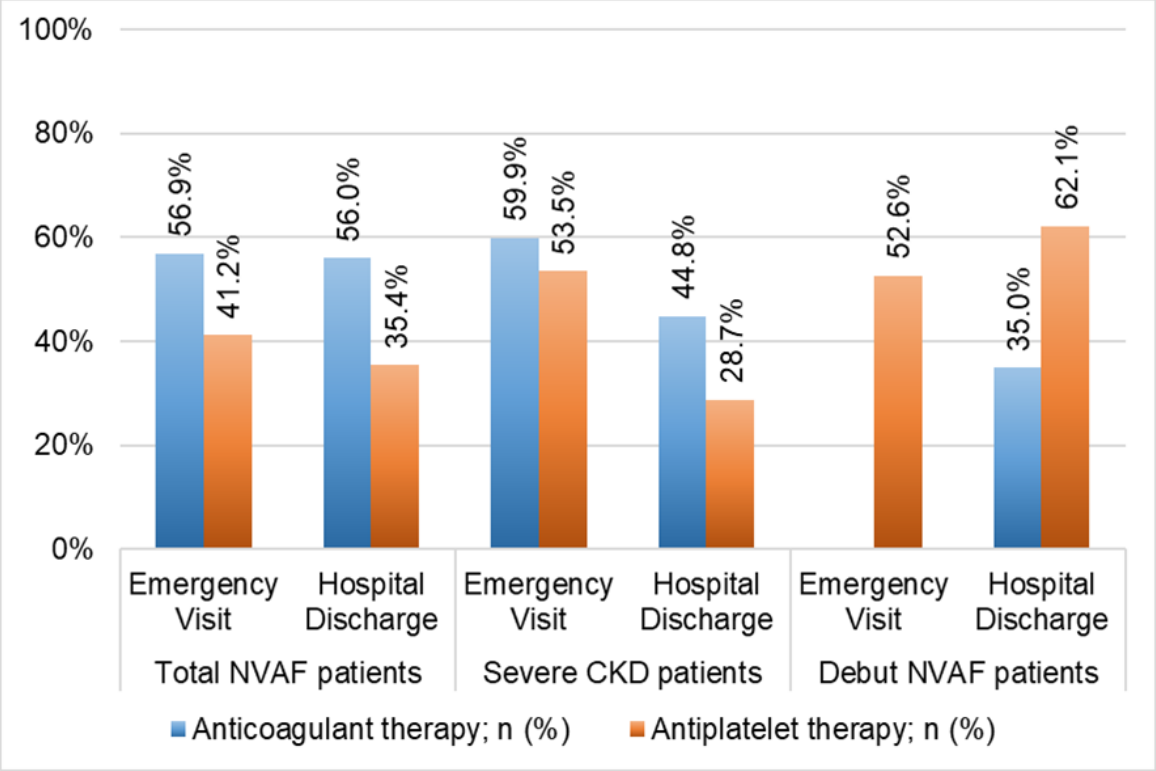

Figura 1: Antithrombotic management from emergency visit to hospital discharge for NVAF patients, NVAF patients with severe CKD and de novo NVAF patients.

being antiplatelet therapy the reference therapy for these patients (62.1 %).

More than 14 % of the NVAF patients do not received anticoagulant therapy or antiplatelet therapy (Table 2).

In the previously diagnosed NVAF patients, with independence of age and renal impairment status, it was shown a decrease in the use of anticoagulants from emergency visit to hospital discharge (Figure 1). However, in case of new NVAF diagnosis, the use of these drugs was increased at hospital discharge (Figure 1).

NVAF mortality

From the overall included NVAF patients (N=905), 123 (13.6 %) of them died during the in-hospital period, and 480 (53.1 %) patients died during the follow up period (up to end 2017).

According to the analysis by age, in-hospital mortality was higher in the group of patients aged 85 years (18.3 %) than in younger patients (11.1 %) (Figure 2).

Severe CKD patients was the group with the highest mortality rate, at both time moments, during the hospital admission, and during the follow up period, being similar to be observed in patients aged 85 years (Figure 2).

Discussion

The management of NVAF patients must consider the ABC pathway recommended by the most recent AF clinical guidelines, based on: (A) Avoid stroke, (B) Better symptom control, and (C) Cardiovascular risk factors and comorbid conditions management.[19] The present study was focused in the identification of one of these main goals for AF management: avoid stroke through an appropriated anticoagulation strategy.[19] From 2014 to 2016 all AF patients attended in the Emergency Service of the Hospital Universitario de Gran Canaria (Spain) and hospitalized in the Internal Medicine Service were included in the RUFIAN registry with the aim to have an overview of the management of this disease from a stroke prevention perspective and considering different patient profiles.

The NVAF patients included in the registry showed a similar profile than the reported in other similar studies.[10,12,20,21] Most of the patients visited in the Emergency Service and admitted in the Internal Medicine Service were patients with known NVAF (87.2 %), most aged ≤85 years old (65.6 %), male (52.9 %) and showing chronic comorbidities such as AH or antecedents of heart failure or other cardiovascular diseases. In this regard, the NONAVASC study[12] included aged NVAF patients attended in Internal Medicine Services in Spain, while the study of Cerqueiro-González et al. included NVAF patients attended in the Internal Services of Hospitals from Galicia (Spain).[20] Both studies showed aged NVAF population with a mean age around 80-85 years and similar comorbidities profile than the reported in our study. In agreement with the main clinical profile of the patients, the stroke

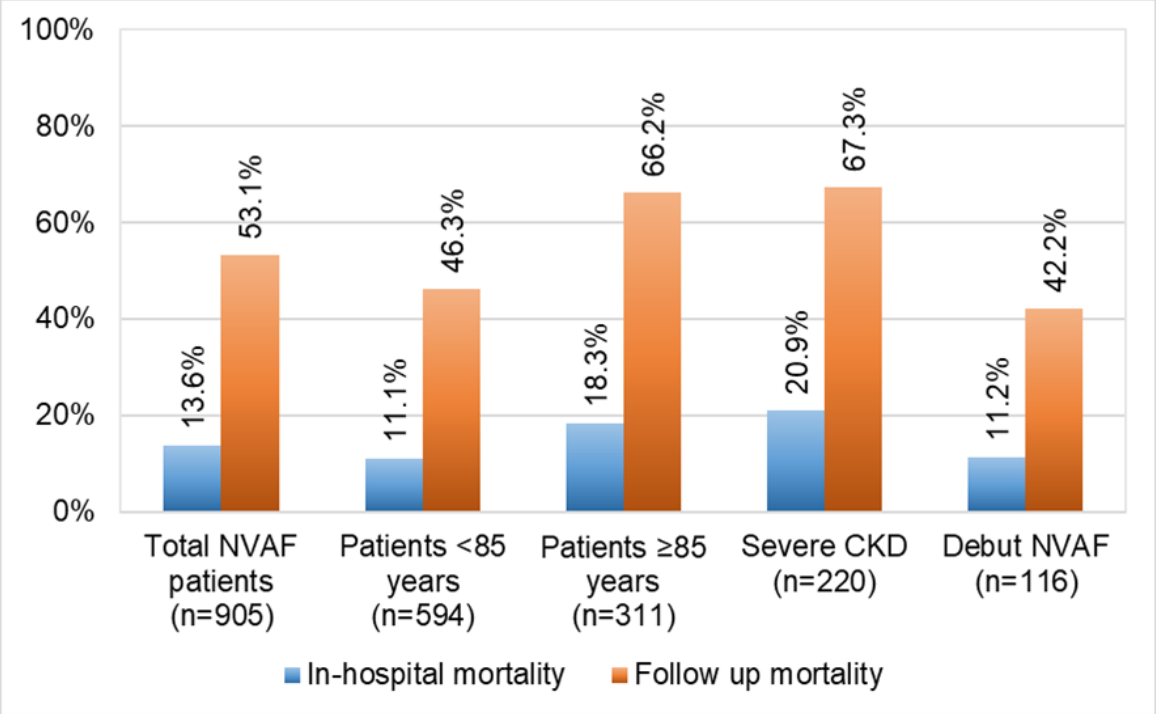

Figura 2: Mortality rates registered for patients included in the RUFIAN registry (2014-2016) at hospital discharge and during the follow-up period (End 2017).

and bleeding risk of the patients included in the RUFIAN registry was similar to the observed in other studies. The patients included in our study showed a mean CHA2DS2-VASc of 4.8 (1.4) and mean HAS-BLED of 2.5 (1.2), similar the values reported in the NONAVASC study, focused on aged population,[12] and in the registry conducted in Galicia, conducted in Internal Medicine Services.[20] Severe CKD, one of the comorbidities linked to an increased thromboembolic and bleeding risk in NVAF patients was observed in 24.3 % of the included patients.

Most NVAF patients, although aged, have a good cognitive and autonomous status, according to the Barthel Index, being capable to understand their disease and manage medication. Out of the total population (n=905), mean Barthel index (SD) was 76.9 (29.0), showing an improved dependence status than the population included in the NONAVASC study[12] and similar to the Galician population.[20] Aligned with our results, in 2019, a study conducted in Spain reported that the mean (SD) Barthel Index, was of 80.9 (27.7) points, indicating a low/moderate level of dependence. However, 21.4 % of the patients had $\leq$60 points, thus being a severe or total dependence.[22] Cognitive impairment was only reported in 20.7 % of the NVAF population, even a mean age over 80 y-o.

Regarding NVAF antithrombotic management, the RUFIAN study evidenced a low percentage of use of anticoagulant therapy at both, emergency visit and hospital discharge. While studies such as the conducted in Galicia
cite20 indicated a use of oral anticoagulants at hospital admission of around 75 % with respect to the total number of NVAF patients, the RUFIAN registry presented a percentage lower than 60 %, even lower than that reported in the NONAVASC registry (69.4 %), which translates into a sub-optimal antithrombotic strategy in these patients, especially considering that more than 98 % of them present a CHA2DS2-VASc $\geq$2. At the time of discharge, anticoagulation figures were even lower, with 56.0 % of patients with previously diagnosed NVAF anticoagulated. This percentage of anticoagulation is especially worrying in two population segments: (i) patients with de novo NVAF, in whom the antithrombotic strategy is key to the prognosis of their disease and in the case of patients with severe CKD, whose risk thrombotic and hemorrhagic is clearly increased and antithrombotic strategi must be appropriately managed.[23,24]

Routine clinical practice seems to indicate a trend to favor antiplatelet over anticoagulation in patients with de novo NVAF (62.1 % antiplatelet vs 35.0 % anticoagulation at discharge), despite existing recommendations to start anticoagulation quickly, especially in the case of patients with high thromboembolic and / or hemorrhagic risk shown in accordance with the CHA2DS2-VASc or HAS-BLED values.[25] On the other hand, in the group of patients showing a clear deterioration of renal function (severe CKD patients), there is also an important need to optimize the antithrombotic strategy used, since there is a significant decrease in the use of both anticoagulation and antiplatelet therapy from the time of admission to discharge. These treatment variations should be individualized as they could be the cause of a greater impact on mortality in these patients if benefit-risk is not appropriately balanced.[23,24]

Overall, mortality rates reported in the RUFIAN registry, at hospital discharge, were higher than the reported in similar studies (13.6 %),[26] being especially relevant for patients

aged ≥85 y-o (18.3 %) and severe CKD patients (20.9 %).[27] Long-term mortality data was increased up to 53.1 % for the total NVAK population, even though the highest percentage was also observed for patients aged 85 y-o (66.2 %) and severe CKD patients (67.3 %), being identified as patient population with a clear need for management review in our context. Equally relevant, attention should be paid to the management of de novo patients, since, although they showed the lowest mortality rates, they are still high compared to the available evidence,[26] especially considering that they are the profile of patients with a better potential prognosis and what more benefit they can have in a treatment optimization.

Although not exempt of limitations, the RUFIAN registry provides evidence based on real clinical practice of the NVAF patients' management in a Spanish region. The registry has been conducted according to the information collected on a regular basis in the medical records of patients admitted to the Internal Medicine Service of the center. Therefore, it presents the limitations of a possible lack of data that have not remained recorded in the medical records, as well as the difficulty of being able to retrieve missing or inconsistent data. In addition, the information provided by the RUFIAN register focuses on the reality of management of NVAF patients in Gran Canaria (Spain), so it may be biased by the practice of the region. Despite that, the data obtained are consistent with other registries made at the national and / or regional level in Spain, thus supporting the evidence provided by the study and conferring validity to it.

Conclusions

The RUFIAN registry highlights a need to optimize the antithrombotic strategies used in patients with NVAF in the Gran Canaria region (Spain). In general, insufficient anticoagulation is observed in all the patient profiles analyzed, the trend to maintain a strategy based on antiplatelet drugs in de novo patients is particularly worrying, with a poor rate of use of anticoagulants, especially considering the available DOACs. In addition, it has been observed a need to provide guidelines that help on decision-making regarding the antithrombotic strategy of target patients with high thrombotic and/or bleeding risk such as severe CKD patients, needing for treatment individualization and careful benefit-risk balancing. With regards to Barthel Index, further research should be performed to measure the capacity of this profile of patients and assess its impact on their quality of life.

The present study has revealed that the higher the prevalence of hypertension and heart failure is, the greater the atrial anatomical alteration and, therefore, a greater risk of NVAF and embolism. A better control of hypertension at earlier ages could have a positive impact reducing the risk of NFAV.

Thus, it can be concluded on the need to have individualized protocols that allow to help in the clinical decision focused on the needs of the different profiles of NVAF patients that are being managed in the different hospital centers in Spain, with an outcome measure based on not only in the use of the different treatments available, but also in the improvement in the reduction of morbi-mortality in these patients.

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Conflict of Interest

paragraph The authors declare to respect the ethical principles of research and to be free of any conflict of interest.

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