Folia Cardiologica 2024, 19
DOI: 10.5603/fc.97374

ISSN 2353–7752
e-ISSN 2353–7760

Antithrombotic therapy in elderly patients with atrial fibrillation: an analysis of non-treatment predisposing factors — results from the Polish Atrial Fibrillation (POL-AF) registry

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Abstract

Introduction. The elderly age is associated with numerous comorbidities. Benefits of antithrombotic treatment regarding the prevention of stroke in patients aged ≥ 75 were demonstrated in most studies. The studies were undertaken due to elderly patients being underrepresented in randomized controlled trials. The aim of this study was to assess the prevalence of oral anticoagulant (OAC) therapy in patients aged ≥ 75 and to identify factors that predispose patients in this group for discontinuation of treatment.

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Received: 12.09.2023 Accepted: 13.11.2023 Early publication date: 16.11.2023

Methods. The study was based on the multicenter prospective Polish Atrial Fibrillation (POL-AF) registry including patients from 10 cardiology centres in Poland. Recruitment lasted from 1 January 2019 to 1 December 2019. Included and analyzed in the study were patients aged ≥ 75 years.

Results. The study group consisted of 1731 patients, with 1563 (90.3%) patients receiving OACs, 71 (4.1%) patients receiving antiplatelets drug, 54 (3.1%) patients receiving low molecular weight heparin, and 43 (2.5%) patients not receiving any stroke prevention. The mean age was 82.2 (5.0) years. Univariable logistic regression models were developed for the choice of OAC versus no treatment. On this basis, specific predictors for the choice of OAC treatment were selected for including in the multivariable model. Independent predictors of no OAC prescription were: anaemia (odds ratio [OR] 0.14, 95% CI: 0.06–0.35, p < 0.001), history of bleeding (OR 0.26, 95% CI: 0.14–0.5, p < 0.001), renal dysfunction (OR 0.42, 95% CI 0.27–0.67, p < 0.001), cancer (OR 0.54, 95% CI: 0.3–0.97, p = 0.04), and age (OR 0.79, 95% CI 0.67–0.94, p = 0.006).

Conclusions. Most elderly AF patients received OACs. The factors predisposing to non-use of OACs in these patients included conditions which significantly increased the risk of bleeding complications.

Key words: atrial fibrillation; antithrombotic therapy; elderly AF patients

Folia Cardiologica 2024; 19: 25–34

Introduction

The incidence of atrial fibrillation (AF) increases with age. For the population aged 75–84, the incidence rate exceeds 8.6% and differs depending on the ethnic group. The elderly age is also associated with numerous comorbidities (chronic kidney disease, frailty syndrome, dementia, cancer, diabetes, heart failure, hypertension) which increase the risk of stroke and bleeding as well as the mortality related thereto [1]. According to the widely used CHA2DS2-VASc scale, the age of ≥ 75 constitutes a risk factor for thromboembolic events and is assigned the risk score of 2 (high risk with anticoagulation treatment being recommended). A score of ≥ 3 points on the HAS-BLED scale corresponds to the estimated risk of bleeding being high. Benefits of antithrombotic treatment regarding the prevention of stroke in patients aged ≥ 75 were demonstrated in most observational studies. The studies had been undertaken due to elderly patients being underrepresented in randomized controlled trials (i.e. excluded due to comorbidities). The strategy of managing antithrombotic therapy is based on the need to balance the risk of stroke versus the adverse effects of the treatment itself, including serious bleeding (intracranial, gastrointestinal bleeding). The objective of this study was to assess the prevalence of OAC therapy in patients aged ≥ 75 and to identify factors that predispose patients in this group for discontinuation of treatment.

Material and methods

Study design and study group

The study was based on the multicenter prospective Polish Atrial Fibrillation (POL-AF) registry including a total of 10 cardiology hospitals in Poland (ClinicalTrials.gov: NCT04419012). Recruitment lasted from 1 January 2019 to 1 December 2019. The inclusion criteria included the diagnosis of AF, and the age of ≥ 18 years. Patients who died during hospitalization, patients with valvular AF (artificial valve, moderate or severe mitral stenosis), and patients hospitalized for ablation procedures were excluded from the study group. Included and analyzed in the study were patients aged ≥ 75 years who received oral anticoagulants, low molecular heparin, antiplatelet drugs, or no prophylaxis whatsoever. Patients were evaluated for demographic data, type of AF, pharmacotherapeutic regimen, laboratory results and concomitant diseases. Estimated glomerular filtration rate (eGFR) was calculated using the CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) formula. Thromboembolic risk and the risk of bleeding were estimated in accordance with the existing guidelines on the basis of the CHA_2DS_2-VASc and the HAS-BLED scales, respectively. The study was approved by the Bioethics Committee of the Świętokrzyskie Voivodeship Medical Chamber (decision no. 104/2018) with the requirement to obtain informed consent from study subjects being waived. The diagram of the study group is presented in Figure 1.

Data on anticoagulant treatment received by study group patients

The anticoagulant therapy as recommended at hospital discharge was assessed with the following four types of regimens being identified:

- OAC ± APT,
- APT,
- Heparin,
- No anticoagulant treatment.

OACs included vitamin K antagonist (VKA), apixaban, dabigatran, and rivaroxaban administered alone or with

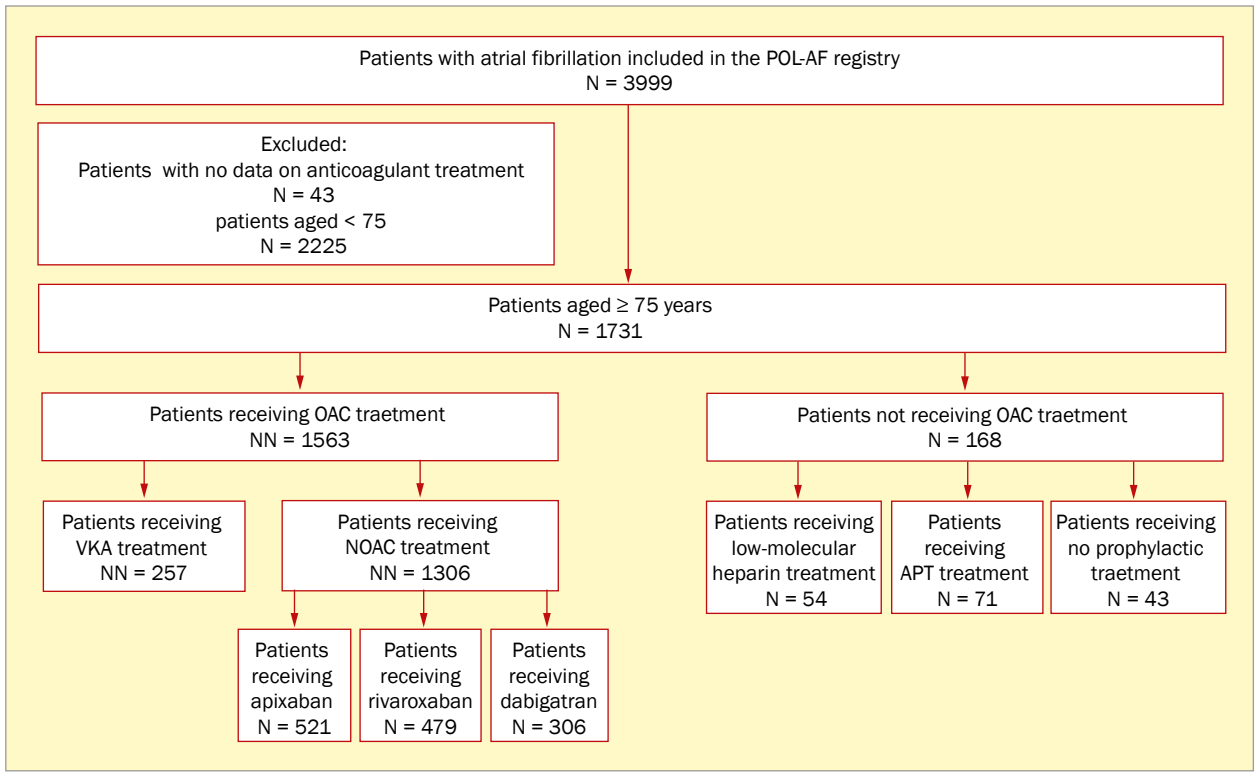

Figure 1. Study flow chart; APT — antiplatelet drug; OAC — oral anticoagulant; NOAC — non-vitamin K antagonist oral anticoagulants; VKA — vitamin K antagonists

APT. APTs included acetylsalicylic acid and/or clopidogrel, ticagrelor, prasugrel.

Statistical analysis

Qualitative variables were described by means of frequencies and percentages. Odds ratios (OR) with 95% confidence intervals were determined using logistic regression (univariable and multivariable) models.

All the statistical tests were two-tailed. The p value of < 0.05 was used as the statistical significance threshold. Calculations were carried out using the R ver. 4.0.3 [R Core Team (2020) software]. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/].

Results

Patient characteristics

The study group consisted of 1731 patients including 916 (52.9%) females. The mean age was 82.2 (5.0) years and was comparable in all subgroups established on the basis of anticoagulant treatment strategy with the exception for the non-treated group where the mean age was higher 86.1 (5.9). The most common form of arrhythmia was paroxysmal AF. The most common comorbidities included hypertension — 1493 (86.35%) patients, heart failure — 1224 (70.7%) patients, vascular disease — 1077 (62.2%) patients. Cancer diseases were most prevalent in the heparin-treated group (18.5%). As many as 2.4% of patients receiving OACs experienced bleeding; the bleeding rate in the no-OAC group was higher and amounted to 9.5%. Gastrointestinal bleeding was in observed in 4.2% vs. 14.3% of OAC and no-OAC patients, respectively. Patients with severe anemia accounted for 0.8% of the OAC group and 6% of the no-OAC group. All patients presented with a high thromboembolic risk. CHA_2DS_2-VASc scores of ≥ 5 were recorded for 1288 (74.4%) patients. The high risk of bleeding according to the HAS-BLED scale was determined in 730 (42.2%) patients. Patients with HAS-BLED score of ≥ 5 accounted for only 0.3% of OAC patients. Patient groups by anticoagulation strategy are presented in Table 1.

Type of anticoagulation therapy

The analyzed group consisted of 1731 patients, with 1563 (90.3%) patients receiving OACs, 71 (4.1%) patients receiving APT, 54 (3.1%) patients receiving low molecular weight heparin, and 43 (2.5%) patients not receiving any anticoagulation treatment. NOACs were administered to 1306 (83.6%) patients. VKA was received by 153 (16.4%) patients. Within the NOAC group, 269 (20.6%) patients received a reduced dose of rivaroxaban, 221 (16.9%)

Table 1. Patient groups by anticoagulation strategy

Clinical characteristics	All patients n = 1731	OAC n = 1563	No-OAC n = 168	Heparin n = 54	APT n = 71	No treatment n = 43
Female gender, n (%)	916 (52.9)	831 (53.2)	85 (50.6)	23 (42.6)	37 (52.1)	25 (58.1)
Age, mean (SD)	82.2 (5.0)	82.1 (5.0)	83.6 (5.1)	82.9 (5.0)	82.6 (4.1)	86.1 (5.9)
Type of fibrillation						
Paroxysmal AF, n (%)	782 (45.2)	707 (45.2)	75 (44.6)	21 (38.9)	39 (54.9)	15 (34.9)
Persistent AF, n (%)	282 (16.3)	261 (16.7)	21 (12.5)	7 (13.0)	7 (9.9)	7 (16.3)
Permanent AF, n (%)	667 (38.5)	595 (38.1)	72 (42.9)	26 (48.1)	25 (35.2)	21 (48.8)
Comorbidities						
Hypertension, n (%)	1493 (86.3)	1352 (86.5)	141 (83.9)	46 (85.2)	62 (87.3)	33 (76.7)
Diabetes, n (%)	604 (34.9)	543 (34.7)	61 (36.3)	16 (29.6)	28 (39.4)	17 (39.5)
Heart failure, n (%)	1224 (70.7)	1098 (70.2)	126 (75.0)	43 (79.6)	51 (71.8)	32 (74.4)
Vascular disease, n (%)	1077 (62.2)	965 (61.7)	112 (66.7)	24 (44.4)	63 (88.7)	25 (58.1)
Coronary artery disease, n (%)	955 (55.2)	854 (54.6)	101 (60.1)	19 (35.2)	61 (85.9)	21 (48.8)
Peripheral artery disease, n (%)	313 (18.1)	276 (17.7)	37 (22.0)	10 (18.5)	20 (28.2)	7 (16.3)
Myocardial infarction, n (%)	432 (25.0)	378 (24.2)	54 (32.1)	11 (20.4)	33 (46.5)	10 (23.3)
Stroke/TIA/peripheral embolism, n(%)	306 (17.7)	275 (17.6)	31 (18.5)	13 (24.1)	15 (21.1)	3 (7.0)
Chronic steroid therapy, n (%)	24 (1.4)	18 (1.2)	6 (3.6)	2 (3.8)	3 (4.2)	1 (2.3)
Cancer, n (%)	98 (5.7)	82 (5.2)	16 (9.5)	10 (18.5)	5 (7.0)	1 (2.3)
Any previous bleeding, n (%)	53 (3.1)	37 (2.4)	16 (9.5)	4 (7.4)	9 (12.7)	3 (7.0)
Intracranial bleeding, n (%)	13 (0.8)	9 (0.6)	4 (2.4)	3 (5.6)	1 (1.4)	0 (0.0)
Gastrointestinal bleeding, n (%)	89 (5.1)	65 (4.2)	24 (14.3)	6 (11.1)	10 (14.1)	8 (18.6)
eGFR < 30 mL/min/1.73 m^2, n (%)	149 (8.8)	118 (7.7)	31 (18.9)	7 (13.7)	14 (20.0)	10 (23.3)
Hemoglobin < 8 g/dL, n (%)	22 (1.3)	12 (0.8)	10 (6.0)	5 (9.4)	3 (4.2)	2 (4.7)
Platelets < 150 G/L, n (%)	310 (18.2)	274 (17.8)	36 (21.6)	10 (18.9)	15 (21.1)	11 (25.6)
Hepatic diseases, n (%)	80 (4.6)	75 (4.8)	5 (3.0)	3 (5.6)	2 (2.8)	0 (0.0)
Thromboembolic risk						
CHA2DS2-VASc, mean (SD)	5.4 (1.4)	5.4 (1.4)	5.5 (1.4)	5.3 (1.5)	5.8 (1.3)	5.2 (1.1)
CHA2DS2-VASc ≥ 3, n (%)	1716 (99.1)	1550 (99.2)	166 (98.8)	52 (96.3)	71 (100.0)	43 (100.0)
CHA2DS2-VASc ≥ 5, n(%)	1288 (74.4)	1158 (74.1)	130 (77.4)	38 (70.4)	60 (84.5)	32 (74.4)
HASBLED, mean (SD)	2.4 (0.8)	2.4 (0.8)	2.5 (0.8)	2.6 (1.0)	2.6 (0.8)	2.3 (0.6)
HASBLED ≥ 3, n (%)	730 (42.2)	645 (41.3)	85 (50.6)	30 (55.6)	37 (52.1)	18 (41.9)
HASBLED ≥ 5, n (%)	6 (0.3)	5 (0.3)	1 (0.6)	0 (0.0)	1 (1.4)	0 (0.0)
Reason for hospitalization						
AF without procedural treatment, n (%)	77 (4.4)	73 (4.7)	4 (2.4)	3 (5.6)	0 (0.0)	1 (2.3)
Cardioversion, n (%)	230 (13.3)	224 (14.3)	6 (3.6)	1 (1.9)	2 (2.8)	3 (7.0)
Planned coronarography/PCI, n (%)	169 (9.8)	153 (9.8)	16 (9.5)	4 (7.4)	11 (15.5)	1 (2.3)
CIED implantation/reimplantation, n (%)	227 (13.1)	214 (13.7)	13 (7.7)	5 (9.3)	4 (5.6)	4 (9.3)
Ablation for other reason than AF, n (%)	97 (5.6)	89 (5.7)	8 (4.8)	1 (1.9)	3 (4.2)	4 (9.3)
Heart failure, n (%)	423 (24.4)	385 (24.6)	38 (22.6)	13 (24.1)	12 (16.9)	13 (30.2)
Acute coronary syndrome, n (%)	120 (6.9)	97 (6.2)	23 (13.7)	1 (1.9)	19 (26.8)	3 (7.0)

AF — atrial fibrillation; APT — antiplatelet drug; CIED — cardiac implantable electronic device; eGFR — estimated glomerular filtration rate; OAC — oral anticoagulant, PCI — percutaneous coronary intervention; SD — standard deviation; TIA — transient ischemic attack

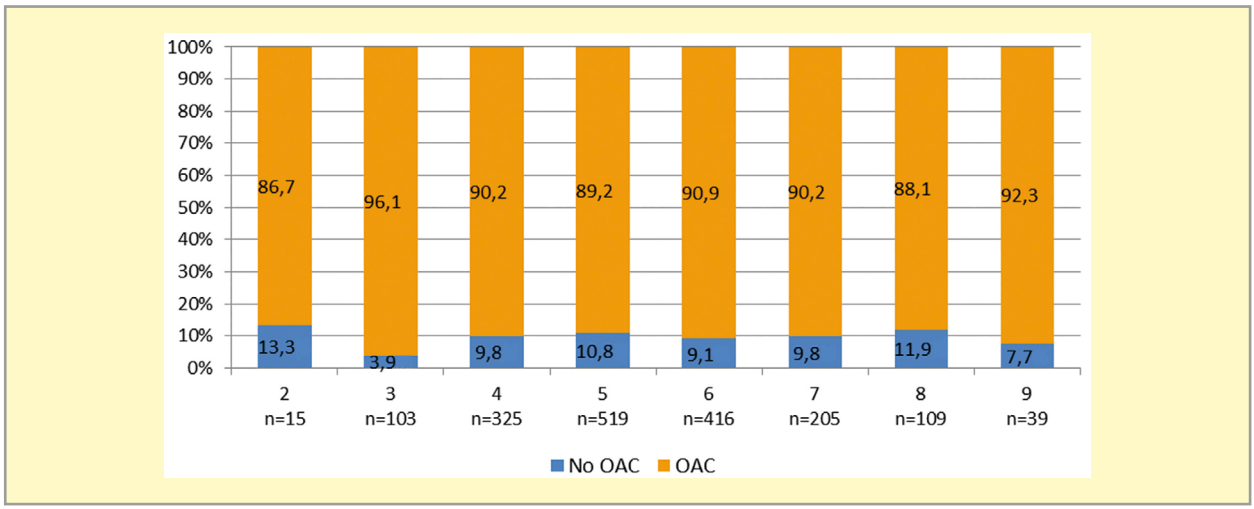

Figure 2A. Oral anticoagulant use by CHA2DS2-VASc score; OAC — oral anticoagulant

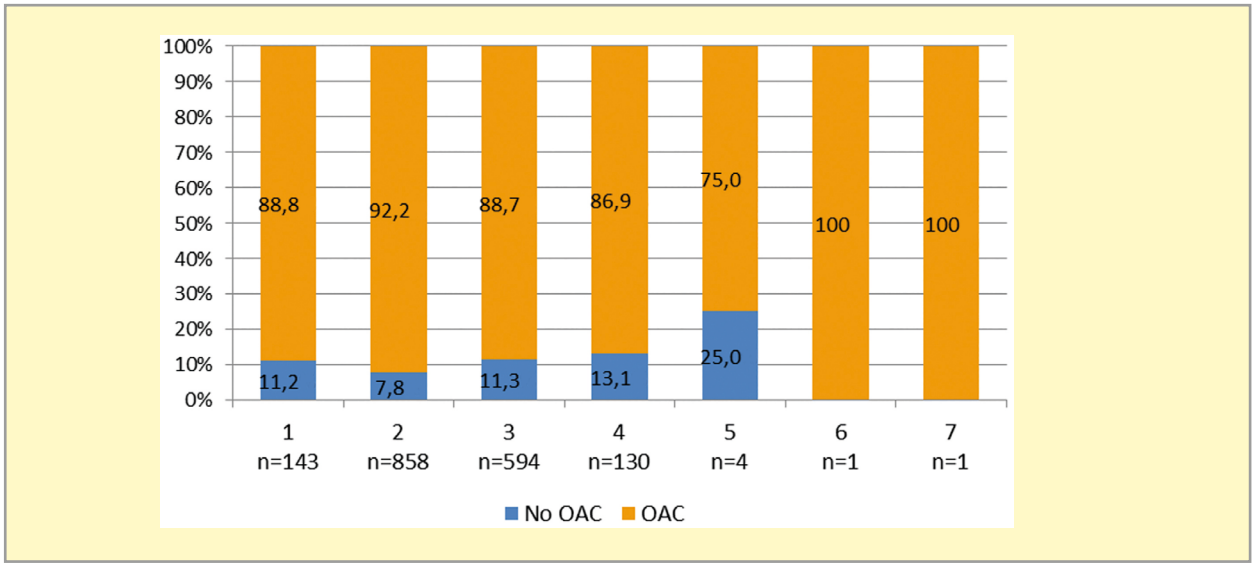

Figure 2B. Oral anticoagulant use by HAS-BLED score; OAC — oral anticoagulant

received a reduced dose of dabigatran, and 258 (19.8%) received a reduced dose of apixaban.

Figure 2A presents a histogram of OAC use by CHA2DS2-VASc scores.

Figure 2B presents a histogram of OAC use by HAS-BLED scores.

Chosen anticoagulation strategy predictors

Univariable logistic regression models were developed for the choice of OAC versus no treatment (Table 2). On this basis, specific predictors for the choice of OAC treatment were selected for including in the multivariable model. These included hospitalization for electrical cardioversion, cancer, Hb of < 8 g/dL, history of myocardial infarction, GFR of < 30 mL/min/1.73 m^2, history of bleeding, electrode CIED implantation/reimplantation, and age. The multivariable regression model for the choice of OAC versus no-OAC is presented in Table 3.

Discussion

Recent advances in the treatment of AF have been due to the vast amount of research into epidemiology, genetics, pathophysiology and diagnostics of this most common arrhythmia in the elderly population [2]. Comorbidities in elderly patients constitute a limitation to anticoagulation

Table 2. Univariable regression model for the choice of OAC versus no-OAC

Factors	OR	95% CI	p-value
Type of fibrillation			
Paroxysmal (vs. permanent)	1.14	0.81–1.6	0.45
Persistent (vs. permanent)	1.5	0.91–2.5	0.11
Clinical factors			
Age (every 1 year)	0.94	0.92–0.97	< 0.001
Age (every 5 years)	0.75	0.64–0.88	< 0.001
Hypertension	1.23	0.79–1.9	0.36
Heart failure	0.79	0.55–1.13	0.20
Cancer	0.53	0.3–0.92	0.03
Diabetes	0.93	0.67–1.3	0.68
Vascular disease	0.81	0.58–1.13	0.21
Coronary arterial disease	0.8	0.58–1.11	0.18
History of myocardial infarction	0.67	0.48–0.95	0.02
Peripheral arterial disease	0.76	0.52–1.12	0.16
Any previous bleeding	0.23	0.13–0.42	< 0.001
Intracranial bleeding	0.24	0.07–0.78	0.02
Gastrointestinal bleeding	0.26	0.16–0.43	< 0.001
Hemoglobin < 8 g/dL	0.12	0.05–0.29	< 0.001
Platelets < 150 G/L	0.79	0.53–1.17	0.23
GFR < 30 mL/min/1.73 m^2	0.36	0.23–0.56	< 0.001
CHA2DS2-VASc ≥ 5	0.84	0.57–1.22	0.35
HAS-BLED ≥ 3	0.69	0.5–0.94	0.02
Reason for hospitalization			
Electrical cardioversion	4.52	1.98–10.33	< 0.001
Elective coronary angiography/PCI	1.03	0.6–1.77	0.91
CIED implantation/reimplantation	1.89	1.05–3.39	0.03
Acute coronary syndrome	0.42	0.26–0.68	< 0.001
Heart failure	1.12	0.77–1.63	0.56
Ablation other than AF	1.21	0.58–2.54	0.62
AF without procedures	2.01	0.72–5.57	0.18

CHA2DS2-VASc scale: heart damage (1 point), hypertension (1 point), age ≥ 75 years (2 points), diabetes (1 point), stroke/TIA/peripheral embolism (2 points), vascular disease (1 point), age 65–74 years (1 point), female gender (1 point). HAS-BLED scale: arterial hypertension (1 point), liver disease (1 point), kidney disease (1 point), history of stroke (1 point), history of bleeding (1 point), labile INR, age > 65 years (1 point) and medications (chronic use of NSAIDs and antiplatelet drugs — 1 point); AF — atrial fibrillation; CI — confidence interval; CIED — cardiac implantable electronic device; eGFR — estimated glomerular filtration rate; OR — odds ratio; PCI — percutaneous coronary intervention; TIA — transient ischemic attack

therapy, particularly with regard to the risk of bleeding. Comorbidity may result in the recommended treatment being adjusted or abandoned altogether. Not all patients receive anticoagulant treatment. The current guidelines of the European Society of Cardiology (ESC) recommend NOACs instead of VKAs in the prevention of cerebral stroke in patients with AF (excluding patients with mechanical valves or moderate to severe mitral valve stenosis) [1, 3].

In this study, we demonstrate that the percentage of AF patients aged ≥ 75 and not receiving antithrombotic treatment was low, with most patients receiving NOACs. These conclusions are used to demonstrate the compliance of treatment with current guidelines. In addition, factors contributing to the increase or reduction of chances for the use of anticoagulant therapy in elderly patients were identified.

As many as 90.3% of patients aged ≥ 75 years were receiving OACs. Only 43 patients (2.5%) received no anticoagulant therapy. All patients presented with a high thromboembolic risk. Our results were compared to those of other observational studies and registries of anticoagulant treatment provided to elderly patients with AF. However, differences in study population, study design, follow-up

Table 3. Multivariable regression model for the choice of OAC versus no-OAC

Factors	OR	95% CI	p-value
Hospitalization due to electrical cardioversion	3.74	1.61–8.66	0.002
CIED implantation/reimplantation	2.08	1.14–3.78	0.020
Age (every 5 years), ≥ 75	0.79	0.67–0.94	0.006
History of myocardial infarction	0.74	0.51–1.06	0.100
Cancer	0.54	0.30–0.97	0.040
eGFR < 60 mL/min/1,73 m2	0.42	0.27–0.67	< 0.001
Any previous bleeding	0.26	0.14–0.50	< 0.001
Hemoglobin < 8 g/dL	0.14	0.06–0.35	< 0.001

CI — confidence interval; CIED — cardiac implantable electronic device; eGFR — estimated glomerular filtration rate; OR — odds ratio

period should be taken into account in the comparison. In a Polish retrospective observational study carried out in patients hospitalized at a reference cardiological center between 2014 and 2017 (1236 patients ≥ 75 years), OACs was recommended in 90.1% of cases [4]. According to the international Gloria-AF II registry of 15,092 patients with newly diagnosed AF and ≥ 1 risk factors for stroke (2011 to 2014), the use of OACs was 83.3% in the age group of 75–84 years and 82.3% in the age group of ≥ 85 years. The conclusion is that despite the widespread belief that OACs should be used more prudently in elderly patients, no age-dependent differences were observed in this patient population [5]. The third phase of the GARFIELD-AF study evaluated a total of 8607 elderly patients, with the percentage of patients treated with anticoagulant being close to that in the overall population at 72% [6]. Mitchell et al. [7] analyzed the use of OACs in patients aged ≥ 75 years as recorded in the UK CPRD registry (2003–2017). The purpose of this study was to investigate the prescription pattern for OACs being prescribed to individuals aged ≥ 75 years at primary health care centers in the United Kingdom before and after NOACs have been introduced into pharmacotherapy. The OACs prescription rate increased to 75% in 2017 [7]. In the analysis of patients included in the EORP-AF II study, the use of OACs was lower in patients aged > 85 years (81.6%) as compared to patients aged < 75 years (84.0%) and 75–84 years (87.6%) [8]. In a retrospective cohort study from Western Australia (follow-up period of 2008 to 2016, 11,294 patients hospitalized at clinical centers), the estimated percentage of patients receiving OACs while being aged ≥ 75 years was lower than that in younger individuals; at the end of the study period, OACs were received only by 31% of the elderly patients [9]. In the nationwide Mexican Carmen-AF registry of 1423 patients from centers with different referral level (follow-up period 2014–2017), 56.4% of patients aged ≥ 75 years were receiving OACs while 19% were left with no antithrombotic treatment whatsoever [10].

Within the OAC group, 1306 (83.6%) patients received NOACs, 94 (6%) patients received warfarin, and 163 (10.4%) patients received acenocoumarol. It is therefore an important and promising conclusion that oral anticoagulants are prescribed in line with the most recent ESC recommendations, despite the age-related challenge. Mitchell et al. carried out a systematic review and a meta-analysis of observational studies assessing VKAs vs NOACs efficacy and safety in elderly patients aged ≥ 75. No significant differences in efficacy results were observed between NOACs and VKAs, with the risk of ischemic stroke being similar and no differences being observed with regard to serious bleeding. NOACs were associated with higher risk of gastrointestinal bleeding and lower risk of intracranial bleeding [11].

The GARFIELD-AF registry data support the NOACs as being preferred by physicians over VKAs in elderly people, with certain discrepancies being observed depending on the geographical region [12–13]. Similarly, in an analysis of a Swedish cohort of patients aged ≥ 75 years and presenting with slightly different characteristics (older age, AF as the main reason for hospitalization), NOACs were prescribed more frequently than VKAs [14]. A meta-analysis carried out by Dutch researchers revealed that NOACs presented with higher efficacy and an equivalent safety profile compared to VKAs in patients > 75 years [15].

The concern about the safety of OACs in this group of patients is obvious and justified. Comorbidities and polypharmacy, frailty syndrome, cognitive disorders and increased likelihood of non-compliance are associated with increased risk of bleeding (not analyzed in POL-AF registry). In the presented study, the percentage of patients using OACs decreased as the risk of bleeding increased (88.8% in HAS-BLED 1, 92.2% in HAS-BLED 2, 88.7% in HAS-BLED 3, 86.9% in HAS-BLED 4, and 75% in HAS-BLED 5). Wojszel et al. [16] analyzed data from a prospective cross-sectional study on the frailty syndrome in a small group of patients hospitalized in a geriatric unit (2014–2015). The percentage of OACs

use in patients with AF was improved by hospitalization with anemia being limiting factor. According to the WHO, anemia (defined as HB level of < 12 g in women and < 13 g in men) can occur in 20% of the elderly; at the same time, patients with Hb of < 10 were excluded from randomized trials on anticoagulant therapies [16]. This data are reflected by the fact that the strongest predictors for non-use of OACs in the presented study included severe anemia and history of bleeding from any location. Other predictors of no-OACs treatment were cancer history and reduced creatinine clearance (eGFR of < 30 mL/min). Indeed, as demonstrated by Fradley et al. [17] in their retrospective analysis of a cohort of cancer patients with AF, up to 44.3% of patients had received no antithrombotic therapy despite high thromboembolic risk and low risk of bleeding. NOACs should be considered as an antithrombotic strategy particularly in patients with favorable prognosis as they don't interact significantly with chemotherapeutic agents [18, 19]. The underrepresentation of elderly population in randomized clinical trials suggests that the recommendations formulated for younger age groups should be extrapolated; however, the concern regarding possible hemorrhagic complications requires caution and treatment adjustments. Data on hemorrhagic complications occurring in this aspect were published among other data by Rondano E. et al. [20]; however, the study was based on a small group. On the other hand, chances for OACs treatment in our study were increased by hospitalization for electrical cardioversion and scheduled CIED implantation/reimplantation.

As many as 90.3% of hospitalized AF patients aged ≥ 75 years as included in the POL-AF registry received oral anticoagulant therapy. NOACs were used most frequently. Severe anemia, history of bleeding in any location, concomitant cancer and eGFR of < 30 mL/min/1.73 m^2 were factors which predisposed patients to receiving no antithrombotic therapy. Thus, a positive trend toward compliance with ESC recommendations in elderly patient was demonstrated despite the group being underrepresented in randomized clinical trials underpinning the recommendations. Therefore, registry studies may be used as an alternative in the clinical decision-making process.

Conclusions

Most elderly AF patients received OACs. The factors predisposing to non-use of OACs in these patients included conditions which significantly increased the risk of bleeding complications — anemia (Hb < 8 g/dL), history of bleeding, renal dysfunction, cancer and age.

Study limitations

This study is burdened by some specific limitations. Patients hospitalized at reference cardiology centers were included in the registry whereas AF is often diagnosed and treated by primary care physicians and internal disease specialists in both outpatient and inpatient settings. In addition, patients included in the study presented with particular clinical situations as actual reasons for hospitalization. It is important that in most cases, AF had been recognized before the patient was included in the registry, with the number of patients with newly recognized AF being low. No follow-up after the discharge prevented evaluation of treatment effects over a long period of time. Patients admitted for ablative treatment were excluded from the study. Not all sites offered this treatment; in addition, the clinical profile of ablation treatment candidates differs from that of other AF patients (younger age, less comorbidities). The strength of the study lies in its population size, prospective nature, and a short-term observation period.

Additional information

Data Availability Statement

Data are contained within the article.

Etics Statement

The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by The Ethics Committee of the Świętokrzyska Medical Chamber in Kielce (104/2018).

Informed Consent Statement

The Ethics Committee waived the requirement for informed consent from the patients.

Funding

No grants or other financing was obtained for this study.

Acknowledgments

The POL-AF registry was initiated on the Scientific Platform of the "Club 30" of the Polish Cardiac Society. Investigators other than those listed as authors include Anna Michalska-Foryszewska (Kielce), Paweł Krzesiński (Warsaw), Katarzyna Karoń (Warsaw), Monika Szewczak (Warsaw) and Wiktor Wójcik (Warsaw).

Conflicts of Interest

A.C.-S., O.J., B.U.-Ż., M.M., M.W.(Maciej Wójcik), R.B., M.G., T.T., J.B.(Jacek Bil), M.W. (Michał Wojewódzki), E.B.-O., A.S. (Anna Szyszkowska) — none, A.K.-C. — speaker for Bayer; J.B. (Janusz Bednarski) — speaker for Bayer, Boehringer Ingelheim, Pfizer; A. T.-K. — lectures for Boehringer Ingelheim, Pfizer; M.W. (Marcin Wełnicki), A.M. — speaker for Boehringer-Ingelheim, Bayer, and Pfizer; I.G. — speaker for Boehringer Ingelheim and Bayer; B.W.-K — speaker for Boehringer-Ingelheim, Bayer, Pfizer.

Contribution statement

A.C.-S., I.G.-G., B.W.-K. — conceptualization; A.C.-S., I.G.-G., B.W.-K. —methodology; I.G.-G. — software, formal analysis investigation; I.G.-G, O.J.,B.U-Ż., M.M.,M.G., A.K.-C.,T.T., R.R.-S., A.T.-K., A.S.(Anna Szyszkowska), M. W. (Marcin Wełnicki), A.M. — resources; I.G.-G., T.T., R.R.-S., A.T.-K., A.S.(Anna Szyszkowska), B.W.-K. — data curation; I.G.-G., B.U-Ż., M.M., M. W. (Marcin Wełnicki), A.M. — writing-original draft preparation; A.C.-S., I.G.-G., J.B (Jacek Bil), M.W. (Michał Wojewódzki) — writing-review and editing; M.G., A.K.-C.,T.T., R.R.-S.,B.W.-K. — visualization; A.C.-S. — provision of study materials or patients; M.W. (Maciej Wójcik), R.B. — collection of assembly of data; B.W.-K. — supervision. All authors have read and agreed to the published version of the manuscript.

Supplementary material

None.

Streszczenie

Wstęp. Podeszły wiek wiąże się ze współchorobowością. W większości badań wykazano korzyści leczenia przeciwzakrzepowego w zapobieganiu udarom mózgu u pacjentów w wieku ≥ 75 lat. Badania przeprowadzono ze względu na niedostateczną reprezentację pacjentów w podeszłym wieku w randomizowanych badaniach kontrolowanych. Celem pracy była ocena częstości stosowania doustnej terapii przeciwzakrzepowej (OAC) u pacjentów w wieku ≥ 75 lat oraz identyfikacja czynników predysponujących pacjentów z tej grupy do przerwania leczenia.

Materiał i metody. Badanie opracowano na podstawie polskiego, wielośrodkowego prospektywnego Polskiego Rejestru Migotania Przedsionków (POL-AF) obejmującego 10 szpitali kardiologicznych (ClinicalTrials.gov: NCT04419012). Rekrutacja trwała od 1 stycznia 2019 r. do 1 grudnia 2019 r. Włączono i analizowano pacjentów w wieku ≥ 75 lat.

Wyniki. Grupę badaną stanowiło 1731 pacjentów, z czego 1563 (90,3%) pacjentów otrzymywało OAC, 71 (4,1%) pacjentów otrzymywało lek przeciwpłytkowy, 54 (3,1%) pacjentów otrzymywało heparynę drobnocząsteczkową, a 43 (2,5%) pacjentów nie otrzymywało jakiejkolwiek profilaktyki udaru. Średni wiek wynosił 82,2 (5,0) lat. Stworzono modele regresji logistycznej jednoczynnikowej wyboru OAC w porównaniu z brakiem leczenia OAC. Na tej podstawie wytypowano konkretne predyktory wyboru leczenia przeciwkrzepliwego OAC, które uwzgledniono w modelu wieloczynnikowym. Niezależnymi czynnikami predykcyjnymi braku leczenia przeciwkrzepliwego były: niedokrwistość (OR 0,14; 95% CI: 0,06–0,35; p < 0,001), krwawienie w wywiadzie (OR 0,26; 95% CI: 0,14–0,5; p < 0,001), niewydolność nerek (OR 0,42; 95% CI: 0,27–0,67; p < 0,001), choroba nowotworowa (OR 0,54; 95% CI: 0,3–0,97; p = 0,04) oraz wiek (OR 0,79; 95% CI: 0,67–0,94; p = 0,006).

Wnioski. 90.3% hospitalizowanych pacjentów w wieku ≥ 75 lat z AF, ujętych w rejestrze POL-AF, otrzymywało terapię doustnymi lekami przeciwkrzepliwymi. Czynnikami predysponującymi do zaniechania terapii przeciwkrzepliwej były stany istotnie zwiększające ryzyko powikłań krwotocznych.

Słowa kluczowe: migotanie przedsionków, terapia przeciwkrzepliwa, podeszły wiek

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