Patterns of uptake of non-vitamin K antagonist oral anticoagulants in Europe: an analysis from the GARFIELD-AF registry

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BACKGROUND

- The latest guidelines for management of AF incorporate recommendations on using the recently available non-vitamin K antagonist oral anticoagulants (NOACs) as an alternative to vitamin K antagonists (VKAs)[1–3].
- Patterns of NOAC uptake vary globally (Table 1); therefore, we investigated the evolving pattern of antithrombotic therapy in Europe using data from a large, contemporary, prospective, global cohort study of patients with newly diagnosed non-valvular AF.

PURPOSE

- To compare uptake of NOACs in different European populations of patients with atrial fibrillation (AF).

METHODS

- Between 2010 and 2014, 17,475 patients with newly diagnosed non-valvular AF and one or more additional risk factors for stroke were enrolled in GARFIELD-AF in Europe. NOAC uptake was evaluated by country at 6, 12 and 24 months. We used two methods for assessing the start date for NOAC therapy in each country:
  1. The date of enrolment of the first patient on a NOAC in each country
  2. The date of first commercial introduction of a NOAC for AF in each country
- The proportion of patients on NOACs was calculated as the number on NOACs at enrolment divided by the total number enrolled after the start date. Countries with a late start date did not have 2-year data.

Table 1. *Use of non-vitamin K antagonist oral anticoagulants (NOACs) at baseline in cohorts 1–3 by region (% patients)*

Region	NOAC use at baseline (% patients)
North America	27.5–56.7
Latin America	10.0–22.2
Europe	2.4–58.1
Asia	1.3–47.5
Other GARFIELD-AF countries*	9.2

*Australia, South Africa

RESULTS

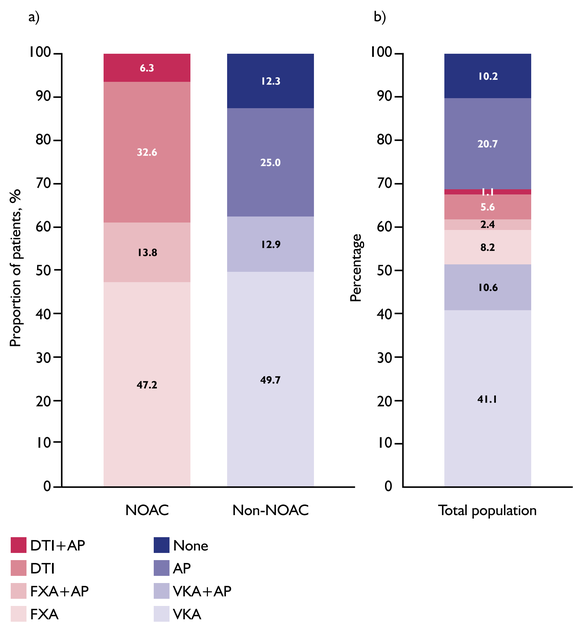
- In Europe, 2979 (17.0%) patients used NOACs at enrolment. The average age was 71.4 years, and 45.5% patients were female (Table 2).
- Factor Xa inhibitors (FXA) were the most commonly used NOAC class at enrolment (Figure 1). The date of enrolment of the first patient on a NOAC in each country ranged from March 2010 (Austria) to October 2012 (the Netherlands).
- The date of first commercial introduction ranged from August 2011 (Denmark, Sweden, Ukraine and UK) to June 2013 (Italy).

Table 2. *Baseline characteristics in European patients enrolled in GARFIELD-AF between 2010 and 2013*

	NOAC (n=2979)	VKA (n=8905)	Total (n=17,475)
Male, %	53.5	54.5	54.5
Female, %	46.5	45.5	45.5
Age at diagnosis, mean (SD)	71.0 (10.7)	71.5 (10.1)	71.4 (10.2)
Medical history, %			
CHF	18.3	19.5	20.5
CAD	19.6	20.7	22.8
Systemic embolism	0.6	0.8	0.7
History of bleeding	2.0	1.8	2.7
History of hypertension	78.9	82.0	80.7
Diabetes mellitus	20.3	23.1	21.3
Risk score, mean (SD)			
CHA_2DS_2-VASc	3.3 (1.5)	3.5 (1.5)	3.4 (1.5)
HAS-BLED	1.4 (0.9)	1.4 (0.9)	1.4 (0.9)

CHF, congestive heart failure; CAD, coronary artery disease; SD, standard deviation

Figure 1. *Treatment at baseline in European a) VKA and NOAC subpopulations; b) total population*



- In the data set defined by first enrolment of a patient on a NOAC, NOAC use increased during follow-up in all countries (Figure 2). At 6 months, the proportion of patients on NOACs varied from <1.5% (Norway, UK, France) to 50.7% (Belgium). At 12 months, it ranged from 0.9% (Finland) to 53.3% (Belgium). At 24 months, it varied from 1.1% (Italy) to 57.6% (Belgium).
- The greatest increase in NOAC use between 6 and 24 months was seen in Norway (Figure 3). At the end of the enrolment period there were marked differences in NOAC uptake between countries, ranging from 2.6% (Finland) to 58.0% (Belgium).

Figure 2. *NOAC use (%) by European country at 6, 12 and 24 months from date of enrolment of first patient on a NOAC*

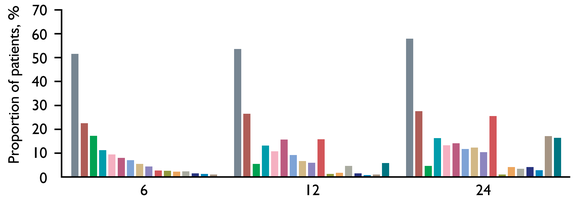


Figure 3. *Increase in NOAC use (%) by country, calculated by subtracting the proportion of patients on NOACS at 6 months after enrolment of first patient on a NOAC from the proportion at the end of enrolment*

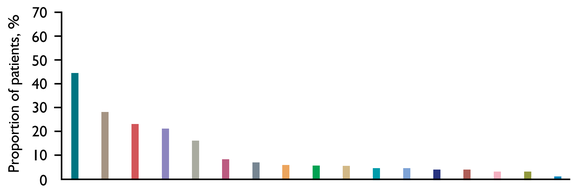
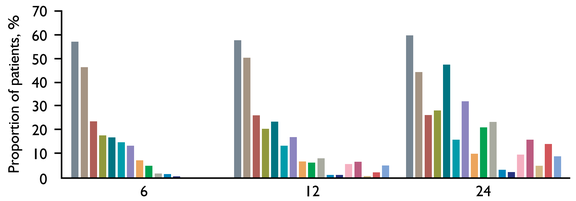
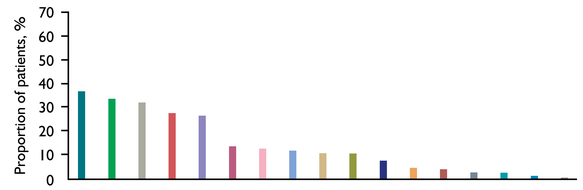


Figure 4. *NOAC use (%) by European country at 6, 12 and 24 months from date of first commercial introduction of a NOAC*



- In the data set defined by first commercial introduction, NOAC use increased during follow-up in all countries except France and Italy (Figure 4). In countries with NOAC availability for AF at 6 months, the proportion of patients on NOACs varied from from 0.6% (UK) to 57.7% (Belgium). At 12 months, it ranged from 0.9% (UK) to 57.4% (Belgium). At 24 months, it varied from 2.1% (UK) to 59.9% (Belgium).
- The greatest increase in NOAC use was seen in Norway (Figure 5). At the end of the enrolment period there were marked differences in NOAC uptake, ranging from 2.9% (Finland) to 59.9% (Belgium).

Figure 5. *Increase in NOAC use (%) by country, calculated by subtracting the proportion of patients on NOACS at 6 months after first commercial introduction from the proportion at the end of enrolment*



CONCLUSIONS

- Large variations in NOAC uptake were observed between European countries, which may be due to differences in availability and arrangements for reimbursement.

DECLARATION OF INTEREST

The GARFIELD-AF registry is supported by an unrestricted research grant from Bayer Pharma AG (Berlin, Germany).

AJC: acted as a consultant to, and received honoraria from, Bayer, Biotronic, Boehringer-Ingelheim, Boston Scientific, Bristol-Myers Squibb (BMS), Cardiovascular Therapeutics, ChanRx, Daiichi, Medtronic, Menarini, Mitsubishi, Novartis, Richmond Pharmacology, Sanofi Aventis, Servier, St Jude Medical, Takeda and Xention; member of speaker bureau for, and received honoraria from Pfizer.

GA: received research support from Menarini International; member of speaker bureaux for Boehringer Ingelheim, Menarini International and Merck; acted as a consultant/advisory board member for Menarini International, Merck and ACRAF.

DA: received honoraria from, and was a member of advisory boards for, Sanofi-Aventis, Merck (MSD), Boehringer Ingelheim, Bayer, BMS/Pfizer, Daiichi Sankyo and Nycomed-Takeda.

J-PB: no conflicts to declare.

FC: acted as a consultant/member of advisory boards for Bayer and Boehringer Ingelheim; received honoraria from BMS.

KAAF: received research support from Bayer, Janssen, Sanofi, Lilly and AstraZeneca.

PJ: acted as a consultant/advisory board member for, and received honoraria from, Bayer, Boehringer Ingelheim and Novartis.

[MK: To be added]

J-YLH: received honoraria from Bayer, BMS/Pfizer, Boehringer Ingelheim, Daiichi Sankyo, Servier and Meda.

AKK: received research support from Bayer HealthCare and Armetheon; acted as a consultant/advisory board member and/or received honoraria from Bayer HealthCare, Sanofi-Aventis, Boehringer Ingelheim, Daiichi Sankyo, Armetheon and Aspen.

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AF Garfield
global anticoagulant registry in the field

TRI Thrombosis Research Institute

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