

This is the peer reviewed version of the following article:

'Real-World' antithrombotic treatment in atrial fibrillation: The eorp-af pilot survey / Lip, Gregory Y. H; Laroche, Cécile; Dan, Gheorghe Andrei; Santini, Massimo; Kalarus, Zbigniew; Rasmussen, Lars Hvilsted; Ioachim, Popescu Mircea; Tica, Otilia; Boriani, Giuseppe; Cimaglia, Paolo; Diemberger, Igor; Hellum, Camilla Fragtrup; Mortensen, Bettina; Maggioni, Aldo P.. - In: THE AMERICAN JOURNAL OF MEDICINE. - ISSN 0002-9343. - 127:6(2014), pp. 519-e1. [10.1016/j.amjmed.2013.12.022]

Terms of use:

The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

15/04/2024 23:59

(Article begins on next page)

Accepted Manuscript



'Real-world' antithrombotic treatment in atrial fibrillation: the EURObservational Research Programme Atrial Fibrillation General Pilot survey

Gregory Y.H. Lip, Cécile Laroche, Gheorghe-Andrei Dan, Massimo Santini, Zbigniew Kalarus, Lars Hvilsted Rasmussen, Popescu Mircea Ioachim, O. Tica, Giuseppe Boriani, Paolo Cimaglia, Igor Diemberger, Camilla Fragtrup Hellum, Bettina Mortensen, Aldo P. Maggioni

PII: S0002-9343(14)00069-2

DOI: [10.1016/j.amjmed.2013.12.022](https://doi.org/10.1016/j.amjmed.2013.12.022)

Reference: AJM 12349

To appear in: *The American Journal of Medicine*

Received Date: 15 December 2013

Revised Date: 24 December 2013

Accepted Date: 26 December 2013

Please cite this article as: Lip GYH, Laroche C, Dan GA, Santini M, Kalarus Z, Rasmussen LH, Ioachim PM, Tica O, Boriani G, Cimaglia P, Diemberger I, Hellum CF, Mortensen B, Maggioni AP, 'Real-world' antithrombotic treatment in atrial fibrillation: the EURObservational Research Programme Atrial Fibrillation General Pilot survey, *The American Journal of Medicine* (2014), doi: 10.1016/j.amjmed.2013.12.022.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

the EURObservational Research Programme Atrial Fibrillation General Pilot survey

Gregory Y H Lip¹; Cécile Laroche²; Gheorghe-Andrei Dan³; Massimo Santini⁴; Zbigniew Kalarus⁵; Lars Hvilsted Rasmussen⁶; Popescu Mircea Ioachim⁷; O. Tica⁷; Giuseppe Boriani⁸, Paolo Cimaglia⁸; Igor Diemberger⁸; Camilla Fragtrup Hellum⁶; Bettina Mortensen⁶; Aldo P Maggioni²

¹University of Birmingham Centre for Cardiovascular Sciences, City Hospital, Birmingham, United Kingdom; ²EORP Department, European Society of Cardiology, Les Templiers, 2035 route des Colles,

06903 Sophia Antipolis, France; ³**Colentina University Hospital, Dept. of Cardiology, Stefan cel Mare 19-21, Sector 2, Bucharest, Romania;** ⁴Cardiovascular Department, S. Filippo Neri Hospital Rome, Italy; ⁵Silesian Center for Heart Disease, Department of Cardiology, ul. M Curie-Sklodowskiej 9, 41-800 Zabrze, Poland; ⁶Department of Cardiology, Aalborg University Hospital and Aalborg Thrombosis Research Unit, Department of Clinical Medicine, Faculty of Health, Aalborg University, Aalborg, Søndre Skovvej 15, DK-9000 Aalborg, Denmark; Cardiology Department, Faculty of Medicine Oradea, Emergency Clinical County Hospital of Oradea; ⁹Institute of Cardiology, Department of Experimental, Diagnostic and Specialty Medicine, University of Bologna, S.Orsola-Malpighi University Hospital, Bologna, Italy.

Running heading Antithrombotic treatment in atrial fibrillation

ADDRESS FOR CORRESPONDENCE

Prof Gregory YH Lip, University of Birmingham Centre for Cardiovascular Sciences, City Hospital, Birmingham, England. e-mail: g.y.h.lip@bham.ac.uk

COMPETING INTERESTS

GYHL - consultant for Bayer, Medtronic, Sanofi, BMS/Pfizer, Daiichi-Sankyo and Boehringer Ingelheim, and has been a speaker for Bayer, BMS/Pfizer, Boehringer Ingelheim, Daiichi-Sankyo and Medtronic.

LHR - speaker bureaus for Bayer, BMS/Pfizer, Janssen Pharmaceuticals, Takeda, Roche Diagnostics and Boehringer Ingelheim.

CL, G-AD, MS, ZK, MIP, OT, PC, CFH, BM, APM – None declared in relation to this manuscript

Author contributions

GYHL – original idea, supervised the research, wrote the 1st draft and made revisions;

Chairman of EORP-AF executive steering committee

CL –statistical analyses, edited and revised the article.

G-AD, MS, ZK, MIP, OT, PC, CFH, BM, APM – All authors had a role in drafting and writing the manuscript.

EORP Sponsors

At the time of the registry, the following companies are supporting the EURObservational Research programme: GOLD: Abbott Vascular, Bayer Pharma, Bristol Myers Squibb (BMS), Pfizer, Boehringer Ingelheim , Daiichi Sankyo Europe, Menarini international Operations, Novartis Pharma, Sanofi-Aventis, Servier International. SILVER: Amgen. BRONZE: Boston Scientific International, Merck & Co. (MSD).

Abstract

Background Current guidelines strongly recommend that oral anticoagulation can be offered to patients with atrial fibrillation and ≥ 1 stroke risk factors. Also, the guidelines recommend that oral anticoagulation should still be used in the presence of stroke risk factors irrespective of rate or rhythm control

Methods and Results In an analysis from the dataset of the Euro Observational Research Programme on Atrial Fibrillation (EORP-AF) Pilot survey (n=3119), we examined antithrombotic therapy prescribing, with particular focus on the risk factors determining oral anticoagulation or antiplatelet therapy use.

Where oral anticoagulation was used amongst admitted patients in whom no pharmacological cardioversion, electrical cardioversion or catheter ablation was performed or planned, the majority were prescribed Vitamin K Antagonist therapy (72.2%) whilst novel oral anticoagulants were used on the minority (7.7%). There were no significant difference in bleeding risk factors between the patients treated on the different types of antithrombotic therapies, except for chronic kidney disease, where oral anticoagulation was less commonly used (p=0.0318). Antiplatelet therapy was more commonly used in patients with high HAS-BLED score (≥ 2) (p<0.0001).

Higher oral anticoagulation use was associated with female gender (p=0.0245). Less novel oral anticoagulants use was associated with valvular heart disease (p<0.0001), chronic heart failure (p=0.0010), coronary artery disease (p<0.0001) and peripheral artery disease (p=0.0092). Coronary artery disease was the strongest reason for combination therapy with oral anticoagulation plus antiplatelet drug (OR 8.54, p<0.0001).

When the CHA₂DS₂-VASc score was used, 95.6% with a score of ≥ 1 received antithrombotic therapy, with 80.5% with a score of ≥ 1 receiving oral anticoagulation. Of note, 83.7% of those with a score ≥ 2 received Antithrombotic Therapy; of the latter, 70.9% of those with a score ≥ 2 received oral anticoagulation. Of the latter, Vitamin K Antagonists were used in 64.1% and novel oral anticoagulants in 6.9%.

Conclusion The EORP-AF Pilot survey provides contemporary data on oral anticoagulation prescribing by European cardiologists for atrial fibrillation. Whilst the uptake of oral anticoagulation (mostly Vitamin K Antagonist therapy) has improved since the EuroHeart

ACCEPTED MANUSCRIPT

survey a decade ago, antiplatelet therapy is still commonly prescribed, with or without oral anticoagulation, whilst elderly patients are commonly undertreated with oral anticoagulation.

Key words atrial fibrillation, oral anticoagulation, stroke, bleeding

ACCEPTED MANUSCRIPT

Introduction

Stroke prevention is central to the management of atrial fibrillation (AF)¹. This common arrhythmia is associated with a high risk of stroke and thromboembolism, and where strokes occur in association with atrial fibrillation, there is a greater mortality and morbidity with more disability, longer hospital stays and lower rate of discharge to the patient's own home¹.

In the EuroHeart survey report from 2006, the Nieuwlaat et al² concluded that antithrombotic therapy in atrial fibrillation was hardly tailored to the patient's stroke risk profile, and suggested that factors other than well-known stroke risk factors were significantly involved in antithrombotic management decisions. There was a call that guideline writers and physician educators should focus on providing one uniform and easy to use stroke risk stratification scheme. Since the EuroHeart survey, the ESC has produced new guidelines³ and introduced use of the CHA₂DS₂-VASc [Cardiac failure or dysfunction, Hypertension, Age \geq 75 [Doubled], Diabetes, Stroke [Doubled]-Vascular disease, Age 65-74, and Sex category[female]]⁴ and HAS-BLED (Hypertension, Abnormal renal/liver function, Stroke, Bleeding history or predisposition, Labile international normalized ratio, Elderly (>65 years), Drugs/alcohol concomitantly)⁵ scores for stroke and bleeding risk stratification, respectively. The availability of novel oral anticoagulants have also changed the landscape for stroke prevention, given their efficacy, safety and relative convenience⁶.

Of importance, the 2012 focused update of the European Society of Cardiology (ESC) guidelines strongly recommended a clinical practice shift, so that the initial decision step is the identification of 'truly low risk' patients with atrial fibrillation who do not need any antithrombotic therapy³. Subsequent to this step, effective stroke prevention (essentially oral anticoagulation) can be offered to patients with \geq 1 stroke risk factors. More recently, similar recommendations from the Asia Pacific Heart Rhythm Society were published⁷. Also, the ESC guidelines recommended that oral anticoagulation should still be used in the presence of stroke risk factors irrespective of rate or rhythm control, and irrespective of whether the latter was successful³. American and Canadian guidelines are broadly similar,

ACCEPTED MANUSCRIPT
recommending oral anticoagulation for patients with stroke risk factors, irrespective of whether or not a rhythm control strategy was successful⁸⁻¹⁰.

In this analysis from the baseline dataset of the Euro Observational Research Programme on Atrial Fibrillation (EORP-AF) Pilot survey, we examined antithrombotic therapy prescribing, with particular focus on the risk factors determining oral anticoagulation or antiplatelet therapy use. Furthermore, we also assessed the uptake of oral anticoagulation use amongst patients undergoing rhythm control (whether cardioversion or ablation).

Methods

The full baseline features and results from the EORP-AF Pilot survey have been previously published¹¹. In this ancillary analysis, we focused on the clinical features associated with antithrombotic therapy use. In brief, the registry population comprised consecutive in- and out-patients with atrial fibrillation presenting to cardiologists in participating ESC countries. Consecutive patients were screened for eligibility at the time of their presentation to a cardiologist (hospital or medical centre). All patients provided written informed consent. Patients with the primary or secondary recorded diagnosis of atrial fibrillation were included.

Patients were officially enrolled in the EORP-AF only if an ECG diagnosis (12-lead ECG, 24-hour Holter, or other electrocardiographic documentation) confirming atrial fibrillation was made. The qualifying episode of atrial fibrillation should have occurred within the last year, and patients did not need to be in atrial fibrillation at the time of enrolment. For the pilot phase, 9 countries formally participated. A minimum of 20 consecutive patients per centre were to be enrolled, with a target of 3000 patients. Enrolment into the registry started in February 2012, and the end of enrolment was March 2013.

Statistical analyses

Univariate analysis was applied to both continuous and categorical variables. Continuous variables were reported as mean±SD or as median and Interquartile Range (IQR). Among-

ACCEPTED MANUSCRIPT

group comparisons were made using a non-parametric test (Kruskal-Wallis test). Categorical variables were reported as percentages. Among-group comparisons were made using a Chi-square test or a Fisher's Exact test if any expected cell count was less than five.

ACCEPTED MANUSCRIPT

Results

We enrolled a total of 3119 patients from February 2012 to March 2013. Characteristics vs. antithrombotic drug use of hospital admitted patients in whom no pharmacological or electrical cardioversion (PCV and ECV, respectively) and catheter ablation was performed or planned are shown in Table 1. In the whole cohort, where oral anticoagulation was used, the majority were prescribed Vitamin K Antagonist therapy (651/902=72.2%) whilst novel oral anticoagulants were used on the minority (69/902=7.7%). No antithrombotic therapy was used in 2.7% (24/902).

Oral anticoagulation was commonly prescribed for permanent atrial fibrillation, usually where heart failure (39.4%) or other cardiac diseases were present. Antiplatelet therapy was commonly prescribed, with or without where there was co-existent myocardial infarction or coronary artery disease.

The mean age of patients prescribed oral anticoagulation was lower than those prescribed antiplatelet therapy alone ($p<0.0001$). There were similar proportions of females prescribed both oral anticoagulation and antiplatelet therapy [Table 1]. Stroke risk factors were not different between various antithrombotic therapy regimes, apart from heart failure (68.5% receiving oral anticoagulation, $p=0.0014$), coronary artery disease (more antiplatelet therapy, $p<0.0001$) and peripheral artery disease (more antiplatelet therapy, $p=0.0031$).

There were no significant difference in bleeding risk factors between the different types of antithrombotic therapies used, except for chronic kidney disease, where oral anticoagulation was less commonly used ($p=0.0318$). Antiplatelet therapy was more commonly used in patients with high HAS-BLED score (≥ 2) ($p<0.0001$).

Paroxysmal atrial fibrillation were less likely to receive oral anticoagulation, compared to permanent atrial fibrillation – although only of the latter, >60% received oral anticoagulation alone or in combination with antiplatelet therapy ($p=0.0018$). With regard

to management strategy, of those undergoing rate control, most received oral anticoagulation alone or in combination with antiplatelet therapy ($p=0.0052$).

Of those receiving oral anticoagulation alone, Vitamin K Antagonists were used in 90.4% (651/720) and novel oral anticoagulants in 9.6% (69/720). Amongst those receiving combination oral anticoagulation plus antiplatelet therapy, the oral anticoagulant used was a Vitamin K Antagonist in 92.7% (179/193) and novel oral anticoagulants in 7.8% (15/193).

Factors associated with oral anticoagulation prescription

Factors associated with oral anticoagulation prescription are shown in Table 2. Higher oral anticoagulation use was associated with female gender ($p=0.0245$). Less oral anticoagulation use was associated with valvular heart disease, heart failure, coronary or peripheral artery disease ($p<0.0001$), diabetes mellitus ($p=0.0012$) and subtype of atrial fibrillation ($p=0.0474$) [Table 2a].

Higher novel oral anticoagulants use was associated with previous transient ischaemic attack/stroke ($p=0.0235$) and heart rhythm strategy ($p=0.0153$). Less novel oral anticoagulants use was associated with valvular heart disease ($p<0.0001$), chronic heart failure ($p=0.0010$), CAD ($p<0.0001$) and peripheral artery disease ($p=0.0092$) [Table 2b].

Factors associated with antiplatelet drug prescription

Factors associated with antiplatelet drug prescription are shown in Table 2c. Higher antiplatelet drug use was associated with female gender ($p=0.0428$), coronary artery disease ($p<0.0001$) and type of atrial fibrillation ($p=0.0004$), with less use in previous stroke/transient ischaemic attack ($p=0.0123$), diabetes ($p=0.0426$) [Table 2c].

Factors associated with oral anticoagulation plus antiplatelet drug prescription

Factors associated with combination oral anticoagulation plus antiplatelet drug prescriptions are shown in Table 2d. Higher combination therapy with oral anticoagulation plus antiplatelet drug use was associated with age, valvular heart disease, chronic heart failure, hypertension, coronary and peripheral artery disease, and diabetes (all $p<0.0001$). Coronary artery disease was the strongest reason for combination therapy (OR 8.54, $p<0.0001$) [Table 3].

There was less combination therapy with oral anticoagulation plus antiplatelet drug use in females ($p=0.0002$), previous stroke/transient ischaemic attack ($p=0.0159$) and heart rhythm strategy ($p=0.0004$).

Risk factors for stroke

In the whole cohort, the commonest risk factors for stroke were heart failure (47.5%) and hypertension (29.3%). Amongst the anticoagulated cohort, the most common stroke risk factor was hypertension (70.5%) [Table 3].

Antithrombotic therapy use based on CHADS₂ and CHA₂DS₂-VASc scores

Based on the CHADS₂ score, 89.3% of those with a score of ≥ 1 received Antithrombotic Therapy. Of the latter, 75.7% (2243/2964) of those with a score of ≥ 1 received oral anticoagulation: Vitamin K Antagonists were used in 68.1% (2019/2964) and novel oral anticoagulants used in 7.7% (228/2964).

When the CHA₂DS₂-VASc score was used, 95.6% with a score of ≥ 1 received Antithrombotic Therapy, with 80.5% (2386/2964) with a score of ≥ 1 receiving oral anticoagulation. Of note, 83.7% of those with a score ≥ 2 received Antithrombotic Therapy; of the latter, 70.9% (2101/2964) of those with a score ≥ 2 received oral anticoagulation. Of the latter anticoagulated patients with a CHA₂DS₂-VASc score ≥ 2 , Vitamin K Antagonist were used in 64.1% (1900/2964) and novel oral anticoagulants in 6.9% (204/2964).

Antithrombotic therapy use based on rhythm control

Pharmacological and electrical cardioversion was planned or performed in 763 and 703 subjects, respectively – whilst catheter ablation was performed or planned in 231 subjects. Clinical characteristics of these patients are summarised in Table w1.

For patients where pharmacological cardioversion was performed or planned ($n=763$), oral anticoagulation was used in the majority of cases (at least 66.6% at discharge in those where pharmacological cardioversion performed, or at least 92.3% where planned). No antiplatelet therapy was used where oral anticoagulation was planned [Table 4, Figure 2]. In the patients undergoing pharmacological cardioversion where oral anticoagulation was

used, the majority were prescribed Vitamin K Antagonist therapy (92.1%, 477/518 at discharge) whilst novel oral anticoagulants were used on the minority (8.1%, 42/518 at discharge)¹. No antithrombotic therapy was used (or status unknown) in 9.1%.

For patients where electrical cardioversion was performed or planned (n=703), oral anticoagulation was used in the majority of cases (at least 85.5% at discharge in those where electrical cardioversion performed, or at least 90.2% where planned). No antiplatelet therapy was used where oral anticoagulation was planned [Table 5, Figure 2]. In the patients undergoing electrical cardioversion where oral anticoagulation was used, the majority were prescribed Vitamin K Antagonist therapy (86.3%, 466/540 at discharge) whilst novel oral anticoagulants were used on the minority (13.7%, 74/540 at discharge). No antithrombotic therapy was used (or status unknown) in 4.9%.

Amongst patients where catheter ablation was performed or planned, oral anticoagulation was used in the majority of patients (at least 88.1% at discharge amongst those where ablation performed, at least 73.3% where planned) [Table 6]. In the patients undergoing ablation where oral anticoagulation was used, the majority were prescribed Vitamin K Antagonist therapy (88.1%, 148/168 at discharge) whilst novel oral anticoagulants were used on the minority (11.9%, 20/168 at discharge). No antithrombotic therapy was used in 7.1% (2.7% performed and 4.4% planned).

¹ There is one patient who received both VKA and NOAC, so n=477 plus 42 does not equal to 518

Discussion

In this report from the EORP-AF Pilot survey, we found that oral anticoagulation was commonly used for atrial fibrillation, especially where heart failure or other cardiac diseases were present. However, antiplatelet therapy was still commonly prescribed, with or without oral anticoagulation where there was co-existent myocardial infarction or coronary artery disease. Elderly patients being less prescribed oral anticoagulation and antiplatelet therapy alone being more commonly prescribed. When the CHA₂DS₂-VASc score was used, 95.58% with a score of ≥ 1 received oral anticoagulation.

Unsurprisingly, oral anticoagulation was commonly used for atrial fibrillation, usually where clinical heart failure or other cardiac disease was present. A clinical diagnosis of 'heart failure' was not an independent predictor for stroke in the systematic review from the Stroke in Atrial Fibrillation Working Group¹², nor in the Swedish atrial fibrillation cohort study¹³. However, the presence of moderate-severe systolic impairment on 2-D echocardiography is an independent predictor of stroke¹⁴. The 'C' in CHA₂DS₂-VASc has been defined as referring to the presence of moderate-severe systolic impairment, or recent decompensation irrespective of ejection fraction, given that such patients are still at high risk of thromboembolism¹⁵.

Antiplatelet therapy was commonly prescribed, with or without oral anticoagulation where there was co-existent myocardial infarction or coronary artery disease. Antiplatelet monotherapy was also commonly prescribed in such patients. The presence of vascular disease independently increases the risk of stroke in atrial fibrillation^{13, 16}. Thus, in atrial fibrillation patients with stable vascular disease, oral anticoagulation is the preferred treatment option, as combination therapy does not reduce thromboembolism but substantially increases the risk of major bleeding, especially intracranial haemorrhage¹⁷. The situation in patients with atrial fibrillation presenting with an acute coronary syndrome and/or undergoing angioplasty or stenting is complex, with guidelines recommending a period of triple therapy, followed by oral anticoagulation plus single antiplatelet, then oral anticoagulation alone^{18, 19}. Recent data from one small randomised trial and a nationwide

ACCEPTED MANUSCRIPT
cohort study suggest that oral anticoagulation plus clopidogrel would suffice post acute coronary syndrome treated with coronary stenting²⁰.

Bleeding risk factors were similar between the different types of antithrombotic therapies used, except that where oral anticoagulation was less commonly used in chronic kidney disease²¹. The latter atrial fibrillation patients are at higher risk of thromboembolism, myocardial infarction and death, as well as major bleeding^{22, 23} [ENREF 18](#). As with the original EuroHeart survey, oral anticoagulation was also less used in paroxysmal atrial fibrillation, although such patients remain at high risk of thromboembolism^{24, 25}. Indeed, guidelines emphasise that in the presence of stroke risk factors, oral anticoagulation should be prescribed irrespective of clinical type of atrial fibrillation (paroxysmal, persistent, permanent)³.

There was a tendency to younger patients being prescribed less oral anticoagulation and antiplatelet therapy alone being more commonly prescribed in the elderly. In the elderly trials, oral anticoagulation was associated with a significant reduction in thromboembolism and the risk of major bleeding or adverse effects were similar or higher with aspirin compared to warfarin in the elderly^{26, 27}. Antiplatelet therapy was also more commonly used in patients with high HAS-BLED score, perhaps due to the perception that aspirin was a safer alternative to oral anticoagulants. As mentioned, the evidence is clear that the risk of major bleeding (or intracranial bleeding) with aspirin is not significantly different to oral anticoagulation, especially in the elderly²⁸. Thus, recent treatment guidelines from Europe and North America have downgraded the role of aspirin for stroke prevention in atrial fibrillation, given its limited (or lack of) efficacy and poor safety^{3, 8}.

In the whole cohort, the commonest risk factors for stroke were heart failure and hypertension. This is in keeping with various epidemiological datasets or surveys where heart failure and hypertension were also the commonest aetiological factors for atrial fibrillation, and in addition, contributes to its thromboembolic complications^{29 30}.

Reassuringly, based on the CHADS₂ score, 89.34% of those with a score of ≥ 1 received oral anticoagulation. When the CHA₂DS₂-VASc score was used, 95.58% with a score of ≥ 1 received oral anticoagulation, and 83.67% of those with a score ≥ 2 received oral

anticoagulation. This is an improvement over reported data in the EuroHeart survey², with an increase of oral anticoagulation use amongst cardiologists. Indeed, this may reflect the introduction of new guidelines, where in the 2012 focused update of the ESC guideline, the initial decision step is to identify 'low risk' patients who did not need any antithrombotic therapy (ie. age <65 and lone atrial fibrillation; otherwise a CHA₂DS₂-VASc score=0 (male) or CHA₂DS₂-VASc score=1 (female))^{3, 31}. Subsequent to this step, patients with ≥1 stroke risk factors can be offered effective stroke prevention, which is oral anticoagulation, whether given as well controlled Vitamin K Antagonist therapy (with a high time in therapeutic range, >70%³²) or one of the novel oral anticoagulants.

Despite a preference for its use in the ESC guidelines, novel oral anticoagulants were prescribed in the minority, but this survey shows its use particularly in patients with previous transient ischaemic attack/stroke or rhythm control. Less novel oral anticoagulants were used in association with valvular heart disease, heart failure and vascular disease. The latter may be due to concerns, particularly with dabigatran, in patients with associated coronary artery disease³³. Also, novel oral anticoagulants should not be used with haemodynamically significant valvular heart disease or prosthetic mechanical valves³⁴. Wider use of novel oral anticoagulants would have implications for improved stroke prevention outcomes in Europe, given their relative efficacy, safety and convenience compared to Vitamin K Antagonists that ultimately lead to a greater net clinical benefit overall^{35, 36} [ENREF 31](#). Also, not all the novel oral anticoagulants were available in some participating countries at the time of data collection.

Oral anticoagulation is also needed in the setting of rhythm control therapy. Pharmacological and electrical cardioversion was planned or performed in 763 and 703 subjects, respectively – whilst catheter ablation, oral anticoagulation was used in the majority. The proportion where oral anticoagulation was not used could be explained by the proportion of new onset atrial fibrillation patients where oral anticoagulation is not initiated in some countries where early conversion to sinus rhythm is achieved. Nonetheless, the ESC guidelines do recommend that oral anticoagulation is used in the presence of stroke risk factors, whether or not a successful rhythm control strategy (ie. cardioversion or ablation) is achieved³.

We did not have data on quality of anticoagulation control, with no data on time in therapeutic range (TTR), which is highly relevant given that TTR is a major determinant of thromboembolism, bleeding and death in patients being treated with Vitamin K Antagonists³⁷. Also, we did not have detailed data on biochemical parameters, nor outcomes which will be addressed by the ongoing follow-up phase of the EORP-AF Pilot, due to report in late 2014.

In conclusion, the EORP-AF Pilot survey provides contemporary data on oral anticoagulation prescribing by European cardiologists for atrial fibrillation. Whilst the uptake of oral anticoagulation (mostly Vitamin K Antagonist therapy) has improved since the EuroHeart survey a decade ago, antiplatelet therapy is still commonly prescribed, with or without oral anticoagulation, whilst elderly patients are commonly undertreated with oral anticoagulation.

ACKNOWLEDGEMENTS

Executive steering committee, Steering Committee (National Coordinators) and Study Investigators were listed in the primary paper describing the baseline data, by Lip et al¹¹.

Data monitor and technical support team:

Data collection was conducted by the EurObservational Research Program department from the European Cardiac Society by Viviane Missiamenou. Statistical analyses were performed by Cécile Laroche with the support of Renato Urso. Overall activities were coordinated by Aldo P Maggioni (Scientific Coordinator EORP) and Thierry Ferreira (Head of Department EORP)

References

1. Banerjee A, Marin F, Lip GY. The improved but unfinished business of stroke risk stratification in atrial fibrillation. *Rev Esp Cardiol.* 2011;64:639-641
2. Nieuwlaat R, Capucci A, Lip GY, Olsson SB, Prins MH, Nieman FH, Lopez-Sendon J, Vardas PE, Aliot E, Santini M, Crijns HJ. Antithrombotic treatment in real-life atrial fibrillation patients: A report from the euro heart survey on atrial fibrillation. *Eur Heart J.* 2006;27:3018-3026
3. Camm AJ, Lip GY, De Caterina R, Savelieva I, Atar D, Hohnloser SH, Hindricks G, Kirchhof P. 2012 focused update of the esc guidelines for the management of atrial fibrillation: An update of the 2010 esc guidelines for the management of atrial fibrillation--developed with the special contribution of the european heart rhythm association. *Europace.* 2012;14:1385-1413
4. Lip GY, Nieuwlaat R, Pisters R, Lane DA, Crijns HJ. Refining clinical risk stratification for predicting stroke and thromboembolism in atrial fibrillation using a novel risk factor-based approach: The euro heart survey on atrial fibrillation. *Chest.* 2010;137:263-272
5. Pisters R, Lane DA, Nieuwlaat R, de Vos CB, Crijns HJ, Lip GY. A novel user-friendly score (has-bled) to assess 1-year risk of major bleeding in patients with atrial fibrillation: The euro heart survey. *Chest.* 2010;138:1093-1100
6. Kornej J, Potpara T, Lip GY. Anticoagulation management in non-valvular atrial fibrillation: Current and future directions. *Pol Arch Med Wewn.* 2013
7. Ogawa S, Aonuma K, Tse HF, Huang D, Huang JL, Kalman j, Kamakura s, Nair m, Shin DG, Stiles M, Teo WS, Yamane T. The aphrs's 2013 statement on antithrombotic therapy of patients with nonvalvular atrialfibrillation. *Journal of Arrhythmia.* 2013;29:190-200
8. You JJ, Singer DE, Howard PA, Lane DA, Eckman MH, Fang MC, Hylek EM, Schulman S, Go AS, Hughes M, Spencer FA, Manning WJ, Halperin JL, Lip GY. Antithrombotic therapy for atrial fibrillation: Antithrombotic therapy and prevention of thrombosis, 9th ed: American college of chest physicians evidence-based clinical practice guidelines. *Chest.* 2012;141:e531S-575S
9. Skanes A, Healey J, Cairns J, Dorian P, Gillis AM, McMurtry S, Mitchell LB, Verma A, Nattel S. Focused 2012 update of the canadian cardiovascular society atrial fibrillation guidelines: Recommendations for stroke prevention and rate/rhythm contro. *Can J Cardiol.* 2012;28:125-136
10. Fuster V, Ryden LE, Cannom DS, Crijns HJ, Curtis AB, Ellenbogen KA, Halperin JL, Kay GN, Le Huezey JY, Lowe JE, Olsson SB, Prystowsky EN, Tamargo JL, Wann LS. 2011 accf/aha/hrs focused updates incorporated into the acc/aha/esc 2006 guidelines for the management of patients with atrial fibrillation: A report of the american college of cardiology foundation/american heart association task force on practice guidelines developed in partnership with the european society of cardiology and in collaboration with the european heart rhythm association and the heart rhythm society. *J Am Coll Cardiol.* 2011;57:e101-198
11. Lip G, al e. A prospective survey in european society of cardiology member countries of atrial fibrillation management: Baseline results of euroobservational research

12. Stroke-in-AF-Working-Group. Independent predictors of stroke in patients with atrial fibrillation: A systematic review. *Neurology*. 2007;69:546-554
13. Friberg L, Rosenqvist M, Lip GY. Evaluation of risk stratification schemes for ischaemic stroke and bleeding in 182 678 patients with atrial fibrillation: The swedish atrial fibrillation cohort study. *Eur Heart J*. 2012;33:1500-1510.
14. AF-Investigators. Echocardiographic predictors of stroke in patients with atrial fibrillation: A prospective study of 1066 patients from 3 clinical trials. *Arch Intern Med*. 1998;158:1316-1320
15. Banerjee A, Taillandier S, Olesen JB, Lane DA, Lallemand B, Lip GY, Fauchier L. Ejection fraction and outcomes in patients with atrial fibrillation and heart failure: The loire valley atrial fibrillation project. *Eur J Heart Fail*. 2012;14:295-301
16. Anandasundaram B, Lane DA, Apostolakis S, Lip GY. The impact of atherosclerotic vascular disease in predicting a stroke, thromboembolism and mortality in atrial fibrillation patients: A systematic review. *J Thromb Haemost*. 2013;11:975-987
17. Lip GY. Don't add aspirin for associated stable vascular disease in a patient with atrial fibrillation receiving anticoagulation. *BMJ*. 2008;336:614-615
18. Marin F, Huber K, Lip GY. Antithrombotic therapy in atrial fibrillation and stent implantation: Treatment or threats by the use of triple or dual antithrombotic therapy. *Thromb Haemost*. 2013;110:623-625
19. Bernard A, Fauchier L, Pellegrin C, Clementy N, Saint Etienne C, Banerjee A, Naudin D, Angoulvant D. Anticoagulation in patients with atrial fibrillation undergoing coronary stent implantation. *Thromb Haemost*. 2013;110:560-568
20. Dewilde WJ, Oirbans T, Verheugt FW, Kelder JC, De Smet BJ, Herrman JP, Adriaenssens T, Vrolix M, Heestermans AA, Vis MM, Tijssen JG, van 't Hof AW, ten Berg JM. Use of clopidogrel with or without aspirin in patients taking oral anticoagulant therapy and undergoing percutaneous coronary intervention: An open-label, randomised, controlled trial. *Lancet*. 2013;381:1107-1115
21. Marinigh R, Lane DA, Lip GY. Severe renal impairment and stroke prevention in atrial fibrillation: Implications for thromboprophylaxis and bleeding risk. *J Am Coll Cardiol*. 2011;57:1339-1348
22. Roldan V, Marin F, Manzano-Fernandez S, Fernandez H, Gallego P, Valdes M, Vicente V, Lip GY. Does chronic kidney disease improve the predictive value of the chads2 and cha2ds2-vasc stroke stratification risk scores for atrial fibrillation? *Thromb Haemost*. 2013;109:956-960
23. Olesen JB, Lip GY, Kamper AL, Hommel K, Kober L, Lane DA, Lindhardsen J, Gislason GH, Torp-Pedersen C. Stroke and bleeding in atrial fibrillation with chronic kidney disease. *N Engl J Med*. 2012;367:625-635
24. Hart RG, Pearce LA, Rothbart RM, McAnulty JH, Asinger RW, Halperin JL. Stroke with intermittent atrial fibrillation: Incidence and predictors during aspirin therapy. Stroke prevention in atrial fibrillation investigators. *J Am Coll Cardiol*. 2000;35:183-187
25. Nieuwlaat R, Dinh T, Olsson SB, Camm AJ, Capucci A, Tieleman RG, Lip GY, Crijns HJ. Should we abandon the common practice of withholding oral anticoagulation in paroxysmal atrial fibrillation? *Eur Heart J*. 2008;29:915-922
26. Mant J, Hobbs FD, Fletcher K, Roalfe A, Fitzmaurice D, Lip GY, Murray E. Warfarin versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the birmingham atrial fibrillation treatment of the aged study, bafta): A randomised controlled trial. *Lancet*. 2007;370:493-503

27. Rash A, Downes T, Portner R, Yeo WW, Morgan N, Channer KS. A randomised controlled trial of warfarin versus aspirin for stroke prevention in octogenarians with atrial fibrillation (waspo). *Age Ageing*. 2007;36:151-156
28. Lip GY. The role of aspirin for stroke prevention in atrial fibrillation. *Nat Rev Cardiol*. 2011;8:602-606
29. Wilke T, Groth A, Mueller S, Pfannkuche M, Verheyen F, Linder R, Maywald U, Kohlmann T, Feng YS, Breithardt G, Bauersachs R. Oral anticoagulation use by patients with atrial fibrillation in germany. Adherence to guidelines, causes of anticoagulation under-use and its clinical outcomes, based on claims-data of 183,448 patients. *Thromb Haemost*. 2012;107
30. Kirchhof P, Ammentorp B, Darius H, De Caterina R, Le Heuzey JY, Schilling RJ, Schmitt J, Zamorano JL. Management of atrial fibrillation in seven european countries after the publication of the 2010 esc guidelines on atrial fibrillation: Primary results of the prevention of thromboembolic events--european registry in atrial fibrillation (prefer in af). *Europace*. 2013
31. Lip GY. Recommendations for thromboprophylaxis in the 2012 focused update of the esc guidelines on atrial fibrillation: A commentary. *J Thromb Haemost*. 2013;11:615-626
32. De Caterina R, Husted S, Wallentin L, Andreotti F, Arnesen H, Bachmann F, Baigent C, Huber K, Jespersen J, Kristensen SD, Lip GY, Morais J, Rasmussen LH, Siegbahn A, Verheugt FW, Weitz JI. Vitamin k antagonists in heart disease: Current status and perspectives (section iii). Position paper of the esc working group on thrombosis - task force on anticoagulants in heart disease. *Thromb Haemost*. 2013;110:1087-1107
33. Uchino K, Hernandez AV. Dabigatran association with higher risk of acute coronary events: Meta-analysis of noninferiority randomized controlled trials. *Arch Intern Med*. 2012
34. Eikelboom JW, Connolly SJ, Brueckmann M, Granger CB, Kappetein AP, Mack MJ, Blatchford J, Devenny K, Friedman J, Guiver K, Harper R, Khder Y, Loblmeier MT, Maas H, Voigt JU, Simoons ML, Van de Werf F. Dabigatran versus warfarin in patients with mechanical heart valves. *N Engl J Med*. 2013;369:1206-1214
35. Banerjee A, Lane DA, Torp-Pedersen C, Lip GY. Net clinical benefit of new oral anticoagulants (dabigatran, rivaroxaban, apixaban) versus no treatment in a 'real world' atrial fibrillation population: A modelling analysis based on a nationwide cohort study. *Thromb Haemost*. 2012;107:584-589
36. Pisters R, Nieuwlaat R, Lane DA, Crijns HJ, Lip GY. Potential net clinical benefit of population-wide implementation of apixaban and dabigatran among european patients with atrial fibrillation. A modelling analysis from the euro heart survey. *Thromb Haemost*. 2012;109
37. Gallego P, Roldan V, Marin F, Romera M, Valdes M, Vicente V, Lip GY. Cessation of oral anticoagulation in relation to mortality and the risk of thrombotic events in patients with atrial fibrillation. *Thromb Haemost*. 2013;110

Webonly Supplementary Table

Table w1 Characteristics of patients in whom an intervention to restore sinus rhythm was performed or planned.

	PCV		ECV		Catheter ablation	
	N=763		N=703		N=231	
	Performed	Planned	Performed	Planned	Performed	Planned
	N=750	N=13	N=612	N=91	N=186	N=45
Demographics:						
Age (years) (mean \pm SD)	67.9 \pm 11.7	68.2 \pm 9.2	66.0 \pm 11.3	64.2 \pm 9.8	59.4 \pm 10.8	62.9 \pm 9.0
Age (years) (median, IQR)	69.0 (61.0-76.0)	65.0 (63.0-74.0)	67.0 (59.0-74.0)	64.0 (59.0-71.0)	61.0 (53.0-67.0)	62.0 (57.0-70.0)
Female gender (%)	46.27	30.77	34.31	28.57	35.48	40.00
Duration of current AF episode (%):						
<24 hours	40.40	15.38	22.71	5.49	30.11	26.67
24 hours to 7 days	18.67	7.69	14.54	19.78	8.60	15.56
>7 days	27.87	53.85	48.37	63.74	25.81	33.33
Unknown	13.07	23.08	14.38	10.99	35.48	24.44
CHA₂DS₂-VASc (%):						
0 (all) & 1 (females)	8.93	15.38	11.60	9.89	27.42	17.78
1 (males)	8.53	15.38	18.46	26.37	24.19	6.67
2 and more (all)	82.53	69.23	69.93	63.74	48.39	75.56

PCV, Pharmacological cardioversion; ECV, electrical cardioversion

Table 1

Characteristics vs. antithrombotic drug use of hospital admitted patients in whom no PCV and ECV and catheter ablation was performed or planned.

	Whole Cohort	None & unknown	OAC Alone	AP Alone	OAC + AP	Other ^a	p- value
N:	902	24	482	127	193	76	
Reason for visit:							
Atrial fibrillation (%)	31.60	58.33	34.85	30.71	22.80	26.32	<0.0001
Acute myocardial infarction (%)	8.20	4.17	0.83	16.54	20.73	10.53	
Valvular heart disease (%)	7.10	4.17	6.43	6.30	6.74	14.47	
Hypertension (%)	1.33	0.00	1.66	0.79	1.04	1.32	
Heart failure (%)	31.60	20.83	39.42	29.13	18.65	22.37	
Other coronary artery disease (%)	8.87	0.00	2.90	9.45	21.24	17.11	
Other cardiac (%)	8.54	12.50	11.41	3.94	6.22	2.63	
Other non-cardiac reason (%)	2.77	0.00	2.49	3.15	2.59	5.26	
Demographics:							
Age (years) (mean \pm SD)	71.16 \pm 11.3	61.46 \pm 14.6	70.16 \pm 11.4	75.27 \pm 11.3	71.62 \pm 10.4	72.53 \pm 9.0	<0.0001
Age (years) (median, IQR)	73.0 (64.0-79.0)	64.5 (49.0-72.5)	72.0 (64.0-78.0)	77.0 (67.0-84.0)	72.0 (64.0-79.0)	73.0 (66.0-80.0)	
Female gender (%)	41.02	20.83	45.85	44.09	33.68	30.26	0.0018
Stroke risk factors:							
Valvular heart disease (%)	72.10	57.89	70.26	75.41	74.87	74.67	0.3636
Ischaemic thromboembolic complications (%)	16.63	4.17	17.12	11.02	20.42	17.33	0.1051
Previous TIA (%)	4.81	0.00	4.40	4.72	6.77	4.05	0.5425
Previous stroke (%)	7.91	0.00	8.54	6.35	7.25	10.67	0.4564
Chronic heart failure (%)	63.37	63.16	68.52	54.76	56.77	62.67	0.0014
Hypertension (%)	74.05	54.17	73.28	72.22	76.68	81.58	0.0830

Coronary artery disease (%)	47.59	31.25	26.47	61.61	81.87	62.50	<0.0001
Peripheral vascular disease (%)	15.01	4.76	12.36	15.20	19.27	22.97	0.0305
Diabetes mellitus (%)	26.67	20.83	27.23	19.69	29.26	30.26	0.3075
Bleeding risk factors:							
Haemorrhagic events (%)	9.15	8.33	8.77	7.20	8.33	17.11	0.1578
Malignancy (%)	4.60	8.33	4.17	4.07	4.21	8.11	0.5269
Chronic kidney disease (%)	21.62	33.33	19.09	30.71	19.69	23.68	0.0318
Type of AF:							
First detected (%)	36.49	29.17	37.77	46.83	32.98	21.92	0.0018
Paroxysmal (%)	19.04	33.33	16.09	20.63	22.34	21.92	
Persistent (%)	12.54	16.67	12.02	7.14	13.30	21.92	
Long standing persistent (%)	2.39	0.00	1.50	4.76	2.13	5.48	
Permanent (%)	29.53	20.83	32.62	20.63	29.26	28.77	
Heart rhythm strategy:							
Rate control only (%)	63.53	45.83	63.69	54.33	65.80	77.63	0.0052
Rate and rhythm control (%)	24.61	33.33	23.24	30.71	27.98	11.84	
Rhythm control only (%)	5.54	12.50	6.22	8.66	2.59	1.32	
Observation (%)	6.32	8.33	6.85	6.30	3.63	9.21	
HAS-BLED Score:							<0.0001
0	13.64	37.5	17.01	7.87	6.74	11.84	<0.0001
1	34.15	20.83	42.74	21.26	26.94	23.68	
≥2	52.22	41.67	40.25	70.87	66.32	64.47	

^a Others include: OAC+Other Antithrombotic Therapy, AP+Other Antithrombotic Therapy, OAC+AP+Other Antithrombotic Therapy and Other Antithrombotic Therapy (Fondaparinux, LMW heparin, UF heparin, Other).

OAC, oral anticoagulation. ATT, antithrombotic therapy; LMW, low molecular weight; UF, unfractionated; TIA, transient ischaemic attack

Table 2**(a) Factors associated with prescription of OAC Alone (Vitamin K Antagonists plus NOACs)**

	Odds Ratio	95% Confidence Limits		p-value
Age (%), (<i>ref.</i> <65 years)	0.9211	0.7942	1.0683	0.2773
Female gender (%)	1.1813	1.0216	1.3661	0.0245
Valvular heart disease (%)	0.6592	0.5645	0.7697	<0.0001
Previous TIA / Stroke (%)	1.2558	0.9788	1.6111	0.0728
Chronic heart failure (%)	0.6343	0.5477	0.7345	<0.0001
Hypertension (%)	0.9815	0.8393	1.1479	0.8153
Coronary artery disease (%), CAD	0.1781	0.1500	0.2114	<0.0001
Peripheral vascular disease (%), PAD	0.5505	0.4367	0.6939	<0.0001
Diabetes mellitus (%)	0.7488	0.6286	0.8919	0.0012
Type of AF (%), (<i>ref.</i>= First detected)	0.8549	0.7321	0.9983	0.0474
Heart rhythm strategy (%), (<i>ref.</i> =Rhythm control only)	1.1779	0.9516	1.4581	0.1323

(b) Factors associated with prescription of NOACs only (Dabigatran or Rivaroxaban).

	Odds Ratio	95% Confidence Limits		p-value
Age (%), (<i>ref</i> < 65 years)	0.7937	0.6136	1.0266	0.0779
Female gender (%)	1.0306	0.7972	1.3324	0.8178
Valvular heart disease (%)	0.5820	0.4480	0.7561	<0.0001
Previous TIA / Stroke (%)	1.5439	1.0575	2.2540	0.0235
Chronic heart failure (%)	0.6401	0.4897	0.8366	0.0010
Hypertension (%)	0.9136	0.6943	1.2021	0.5186
Coronary artery disease (%), CAD	0.4786	0.3448	0.6645	<0.0001
Peripheral vascular disease (%), PAD	0.4870	0.2802	0.8465	0.0092
Diabetes mellitus (%)	0.8550	0.6172	1.1844	0.3457
Type of AF (%), (<i>ref.</i> = First detected)	1.1720	0.8948	1.5352	0.2487
Heart rhythm strategy (%), (<i>ref.</i>=Rhythm control only)	1.5086	1.0800	2.1074	0.0153

OAC, oral anticoagulation.

(c) Factors associated with prescription of Antiplatelet Drugs Alone.

	Odds Ratio	95% Confidence Limits		p-value
Age (%), (<i>ref</i> < 65 years)	1.0643	0.8545	1.3256	0.5781
Female gender (%)	1.2433	1.0068	1.5353	0.0428
Valvular heart disease (%)	1.0511	0.8374	1.3192	0.6674
Previous TIA / Stroke (%)	0.5798	0.3766	0.8927	0.0123*
Chronic heart failure (%)	0.8658	0.6974	1.0749	0.1916
Hypertension (%)	0.9752	0.7749	1.2271	0.8301
Coronary artery disease, CAD (%)	1.7052	1.3578	2.1414	<0.0001
Peripheral vascular disease, PAD (%)	0.8938	0.6304	1.2672	0.5283
Diabetes mellitus (%)	0.7505	0.5683	0.9913	0.0426
Type of AF (%), (<i>ref.</i>= First detected)	1.4784	1.1878	1.8401	0.0004
Heart rhythm strategy (%), (<i>Ref.</i> =Rhythm control only)	1.2820	0.9576	1.7162	0.0944

(d) Factors associated with prescription of OAC in combination with Antiplatelet Drugs.

	Odds Ratio	95% Confidence Limits		p-value
Age (%), (<i>ref.</i> age <65 years)	1.5873	1.3031	1.9334	<0.0001
Female gender (%)	0.7000	0.5798	0.8450	0.0002
Valvular heart disease (%)	1.9615	1.5957	2.4111	<0.0001
Previous TIA / Stroke (%)	0.5798	0.3766	0.8927	0.0159
Chronic heart failure (%)	2.3415	1.9411	2.8246	<0.0001
Hypertension (%)	1.8098	1.4553	2.2508	<0.0001
Coronary artery disease, CAD (%)	8.5486	6.8823	10.6182	<0.0001
Peripheral vascular disease, PAD (%)	2.5063	1.9551	3.2129	<0.0001
Diabetes mellitus (%)	1.8228	1.4855	2.2368	<0.0001
Type of AF (%), (<i>ref.</i> = First detected)	0.8547	0.6993	1.0447	0.1251
Heart rhythm strategy (%), (<i>Ref.</i> =Rhythm control only)	0.5789	0.4253	0.7879	0.0004

Table 3

Prevalence of risk factors for stroke in patients according to the ESC Guidelines.

	Whole Cohort		OAC Alone	
	N	%	N	%
Heart failure (%)	1411	47.48	739	42.74
Hypertension (%)	909	29.29	1262	70.54
Age (%):				
<65	1030	33.02	613	34.04
65-74	1038	33.28	631	35.04
≥75	1051	33.70	557	30.93
Diabetes mellitus (%)	638	20.57	333	18.56
Previous TIA (%)	126	4.09	81	4.53
Previous stroke (%)	195	6.30	120	6.68
Ischaemic thromboembolic complications (%)	405	13.09	250	13.94
Peripheral vascular disease (PAD) (%)	328	11.03	143	8.47
Myocardial infarction (MI) (%)	439	16.33	113	7.30
Female (%)	1260	40.40	758	42.09

TIA, transient ischaemic attack

Table 4 Antithrombotic prescription at inclusion and at discharge when the following pharmacological cardioversion were either performed at the time of the survey or planned at discharge

(a) Pharmacological cardioversion								
	Performed (n=750)				Planned (n=13)			
	Inclusion		Discharge		Inclusion		Discharge	
	N	%	N	%	N	%	N	%
None & Unknown	286	38.1	68	9.1	2	15.4	0	0.0
OAC Alone	188	25.1	280	37.3	8	61.5	3	69.2
Antiplatelet Alone	190	25.3	147	19.6	2	15.4	0	0.0
OAC + Antiplatelet	66	8.8	220	29.3	1	7.7	0	23.1
Others^a	20	2.7	35	4.7	0	0	0	7.7
Total	750	100.0	750	100.0	13	100.0	3	100.0

^a Others include: OAC + Other ATT, AP + Other ATT, OAC + AP + Other ATT and Other ATT (Fondaparinux, LMW heparin, UF heparin, Other).

(b) Vitamin K Antagonists or NOAC use												
	Performed						Planned					
	Inclusion (N)			Discharge (N)			Inclusion (N)			Discharge (N)		
	VKA	NOAC	Total	VKA	NOAC	Total	VKA	NOAC	Total	VKA	NOAC	Total
OAC Alone	170	18	188	248	32	280	6	2	8	6	3	9
OAC + Antiplatelet	61	5	66	212	9	220	1	0	1	3	0	3
OAC + Others^b	4	1	5	17	1	18	0	0	0	1	0	1
Total	235	24	259	477	42	518	7	2	9	10	3	13

^b Others include: OAC + Other ATT and OAC + AP + Other ATT

Table 5 Antithrombotic prescription at inclusion and at discharge when the following electrical cardioversion were either performed at the time of the survey or planned at discharge

(a) Electrical cardioversion								
	Performed (n=612)				Planned (n=91)			
	Inclusion		Discharge		Inclusion		Discharge	
	N	%	N	%	N	%	N	%
None & Unknown	64	10.5	23	3.8	23	25.3	1	1.1
OAC Alone	406	66.3	430	70.3	41	45.1	74	81.3
Antiplatelet Alone	45	7.4	37	6.1	19	20.9	0	0.0
OAC + Antiplatelet	85	13.9	93	15.2	6	6.6	8	8.8
Others^a	12	2.0	29	4.7	2	2.2	8	8.8
Total	612	100.0	612	100.0	91	100.0	91	100.0

^a Others include: OAC+Other ATT, AP+Other ATT, OAC+AP+Other ATT and Other ATT (Fondaparinux, LMW heparin, UF heparin, Other).

(b) VKA or NOAC use												
	Performed						Planned					
	Inclusion (N)			Discharge (N)			Inclusion (N)			Discharge (N)		
	VKA	NOAC	Total	VKA	NOAC	Total	VKA	NOAC	Total	VKA	NOAC	Total
OAC Alone	350	56	406	364	66	430	38	3	41	64	10	74
OAC + Antiplatelet	78	7	85	85	8	93	6	0	6	8	0	8
OAC + Others^b	1	0	1	17	0	17	0	0	0	5	0	5
Total	429	63	492	466	74	540	44	3	47	77	10	87

^b Others include: OAC+Other ATT and OAC+AP+Other ATT

Table 6 Antithrombotic prescription at inclusion and at discharge when the following catheter ablation were either performed at the time of the survey or planned at discharge

(a) Catheter ablation								
	Performed (n=186)				Planned (n=45)			
	Inclusion		Discharge		Inclusion		Discharge	
	N	%	N	%	N	%	N	%
None & Unknown	3	1.6	5	2.7	5	11.1	2	4.4
OAC Alone	159	85.5	155	83.3	30	66.7	28	62.2
Antiplatelet Alone	10	5.4	9	4.8	2	4.4	2	4.4
OAC + Antiplatelet	8	4.3	9	4.8	5	11.1	5	11.1
Others^a	6	3.2	8	4.3	3	6.7	8	17.8
Total	186	100.0	186	100.0	45	100.0	45	100.0

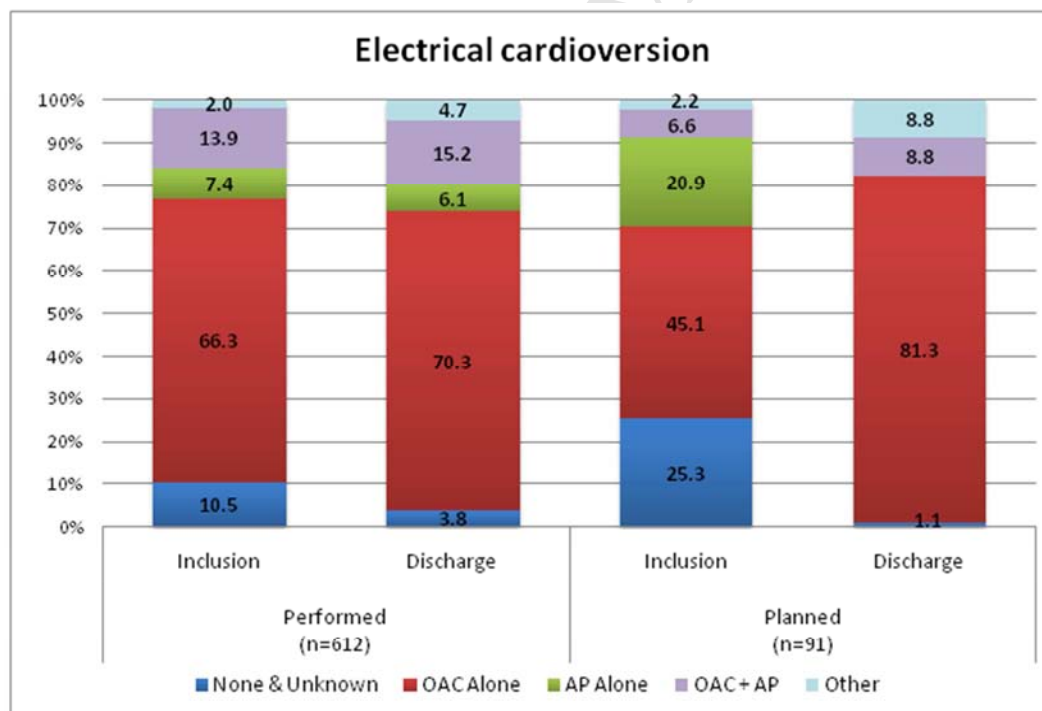
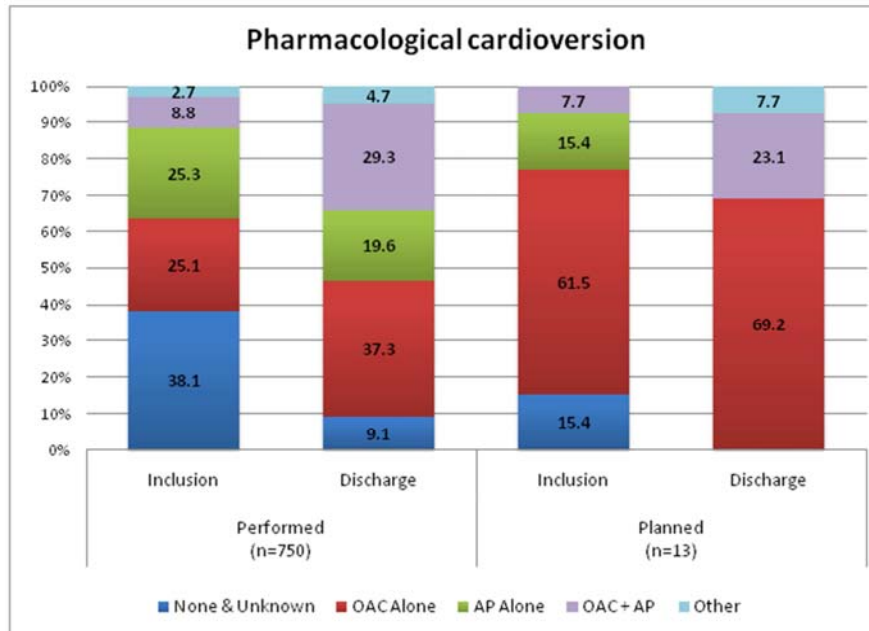
^a Others include: OAC+Other ATT, AP+Other ATT, OAC+AP+Other ATT and Other ATT (Fondaparinux, LMW heparin, UF heparin, Other).

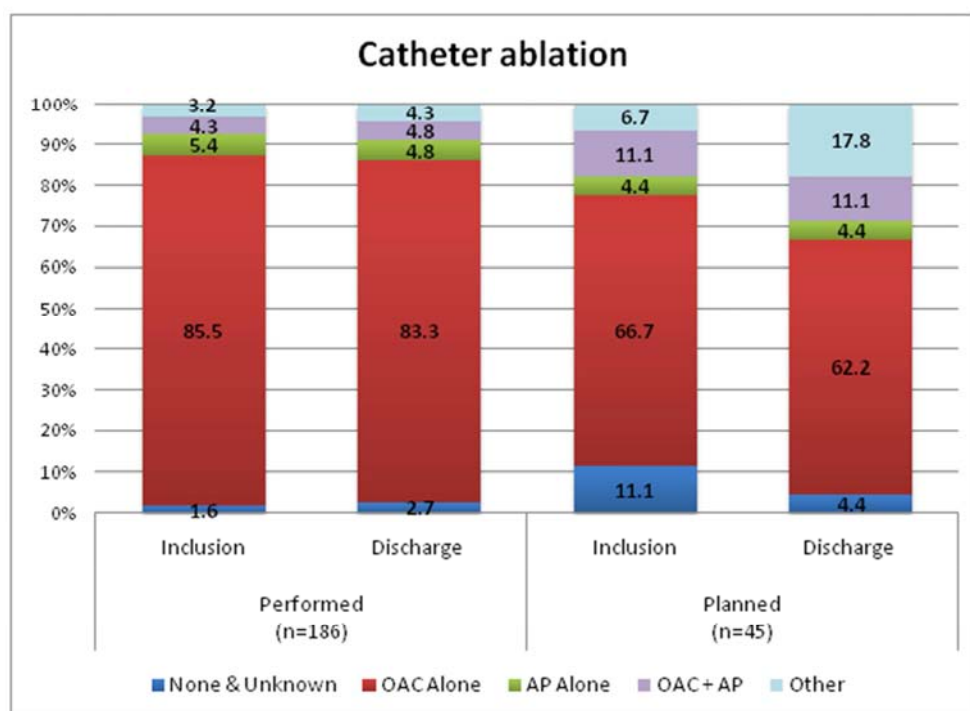
(b) VKA or NOAC use												
	Performed						Planned					
	Inclusion (N)			Discharge (N)			Inclusion (N)			Discharge (N)		
	VKA	NOAC	Total	VKA	NOAC	Total	VKA	NOAC	Total	VKA	NOAC	Total
OAC Alone	141	18	159	138	17	155	27	3	30	24	4	28
OAC + Antiplatelet	6	2	8	6	3	9	4	1	5	5	0	5
OAC + Others^b	3	0	3	4	0	4	0	0	0	5	0	5
Total	150	20	170	148	20	168	31	4	35	34	4	38

^b Others include: OAC+Other ATT and OAC+AP+Other ATT

Figure 1

Antithrombotic drug prescription at inclusion and at discharge when the following interventions were either performed at the time of the survey or planned at discharge: (A) Pharmacological cardioversion, (B) Electrical cardioversion or (C) catheter ablation





Clinical significance

- The EuroObservational Research Programme on Atrial Fibrillation(EORP-AF) Pilot survey provides contemporary data on oral anticoagulation prescribing by European cardiologists.
- Where oral anticoagulation was used, the majority were prescribed Vitamin K Antagonists(72.2%). Novel oral anticoagulants were used in the minority(7.7%). Also, 80.5% with a CHA₂DS₂-VASc score of ≥ 1 received oral anticoagulation.
- Antiplatelet therapy is still over-prescribed, with or without oral anticoagulation, whilst elderly patients were commonly undertreated with oral anticoagulation.

[70 words]