Patterns and Adherence to Guidelines of Antithrombotic Therapy in Thai Patients with Nonvalvular Atrial Fibrillation

Arom Jedsadayanmata Pharm D, PhD*

* Center of Pharmaceutical Outcomes Research, and Department of Pharmacy Practice, Faculty of Pharmaceutical Sciences, Naresuan University, Phitsanulok, Thailand

Background: *Antithrombotic therapy is essential in patients with atrial fibrillation (AF) to prevent systemic thromboembolism, particularly ischemic stroke. Several studies conducted in North America and European countries revealed that AF patients at high risk for thromboembolism did not adequately receive antithrombotic therapy as recommended by relevant guidelines. However, such a few studies were reported from Asian countries.*

Objective: *To describe patterns and adherence to the guideline of antithrombotic therapy in ambulatory patients with non-valvular AF in Thailand.*

Material and Method: *From an electronic medical database, data of all patients that were diagnosed with AF and presented to the ambulatory care clinic between June 1 and September 30, 2008 were retrieved for analysis. The most recently prescribed antithrombotics and associated risk factors for thromboembolism were reviewed for patterns and adherence to guidelines of antithrombotic therapy according to the $CHADS_2$ (congestive heart failure, hypertension, age ≥75, diabetes and stroke/transient ischemic attack) score.*

Results: *Five hundred thirteen AF patients were identified, of these, 369 patients had no valvular heart diseases or replacement and were recruited into data analysis. Among non-valvular AF patients, 138 (37.4%), 127 (34.4%), and 104 (28.2%) patients were classified as high ($CHADS_2$ score ≥2), intermediate ($CHADS_2$ = 1), and low ($CHADS_2$ = 0) risk for ischemic stroke, respectively. Patients who were classified as low and intermediate risk were prescribed warfarin as antithrombotic therapy in 51.0% and 52.8%, respectively. Among high-risk patients, 70.3% were prescribed warfarin while 19.6% received only antiplatelets and 10.1% received no antithrombotic therapy.*

Conclusion: *The present study has demonstrated that a proportion of non-valvular AF patients at high-risk for ischemic stroke had not received anticoagulation therapy as recommended by relevant guidelines. Further, low-risk patients were over-treated with anticoagulants. The finding should prompt health care policy makers to take action to improve quality of care for these patients.*

Keywords: *Atrial fibrillation, Anticoagulation, Antithrombotics, Thromboembolism, Warfarin*

Atrial fibrillation (AF) has been recognized as epidemic and an important cardiac arrhythmia leading to morbidity and mortality worldwide[1]. Patients with AF are at increased risk of developing thromboembolic complications, particularly ischemic stroke. Thus, international guidelines related to AF recommend antithrombotic therapy either as anticoagulants or antiplatelets based on the risk levels of thromboembolism. Consistent among all guidelines, AF patients stratified as high-risk should receive anticoagulation therapy in long-term to prevent ischemic stroke[1-4].

Several studies have revealed that a high proportion of AF patients at high-risk for ischemic stroke inadequately received anticoagulation therapy. A study conducted in the U.S. revealed that only 42% of high-risk AF patients received warfarin to prevent ischemic stroke[5]. Another report from European countries demonstrated that about 60% of high-risk patients were prescribed anticoagulants[6]. Recently, a study conducted in aged care facilities in Australia disclosed that among high-risk patients, only 38% received warfarin and 16% did not receive any antithrombotic therapy[7]. Altogether, these studies from differing geographic regions consistently showed that anticoagulation therapy was under-prescribed in AF patients at high risk for ischemic stroke.

Although several studies revealed that antithrombotic therapy in high-risk AF patients was underused, most of them were conducted in North

Correspondence to:

Jedsadayanmata A, Department of Pharmacy Practice, Faculty of Pharmaceutical Sciences, Naresuan University, Muang, Phitsanulok 65000, Thailand.
Phone: 055-963-668, Fax: 055-963-731
E-mail: aromj@nu.ac.th

America and European countries[5-8]. Such a few studies were reported from Asian countries[9-11]. Whether the prescribing patterns of antithrombotic therapy in Asian countries would be comparable to those of aforementioned reports are uncertain. Thus, the present study aimed to describe patterns and adherence to the guideline of antithrombotic use among ambulatory patients with non-valvular AF (NVAF) in Thailand. The results should provide further information for policy makers to devise an interventional program to improve quality of care for this group of patients.

Material and Method
Study design and setting
        The present study was a cross-sectional review of electronic medical database of NVAF patients receiving care in an ambulatory care clinic affiliated with a tertiary-care, academic teaching hospital in Thailand. The 1,000-bed hospital and its affiliated clinics serve patients in a large metropolitan area of Phitsanulok Province, and act as the referral medical center in the lower northern part of Thailand. At the time of the present study, data entry into the electronic database was performed daily by medical statistics staff or other trained personnel. The database comprised coding of principal and secondary diagnosis, information on performed laboratory and medical procedures as well as prescribed medications. All data used in the present study were retrieved for the researcher by hospital staffs that functioned as electronic database specialists.
        The study protocol had been approved by the Institutional Review Board Committee on Human Research at Naresuan University (approval number 51 01 01 0026) and by the Research Committee at the study hospital prior to data collection.

Data collection
        Data of all patients who were identified as having AF (ICD-10 = I-48) and presented to the ambulatory care clinic between June 1 and September 30, 2008 were retrieved for analysis. The 4-month period was chosen as a sampling time frame for this cross-sectional study since most ambulatory patients were followed up regularly at least once in four months, thus expanding sampling time frame over four months should have captured most of the AF patients who were routinely receiving medical care at the clinics. Patients who were identified as having valvular heart disease or replacement (ICD10: I05-I09 and I34-I36) were classified as valvular AF patients, and their data were

not separately analyzed. The sample size of at least 300 NVAF patients was regarded as sufficient to permit evaluation of up to 15 potential predictors of anticoagulation use in multivariate analysis with logistic regression.

Data analysis
        Data on patient demographics, including age, gender, co-morbidities and prescribed antithrombotic agents at the index visit (defined as the most recent visit to the clinic during sampling time frame) was retrieved from the database, managed with Microsoft Excel and subsequently imported for analysis with STATA statistical software version 8.0.
        Details of patient demographics, clinical characteristics, and prescribed antithrombotics were summarized and presented as frequencies and percentages. The prescribed antithrombotics were categorized into oral anticoagulants (including warfarin as well as combination of warfarin plus antiplatelets), only antiplatelets and no antithrombotic therapy.
        The ischemic stroke risk of each non-valvular AF patient was stratified according to the $CHADS_2$ algorithm (congestive heart failure, hypertension, age ≥75, and diabetes and stroke/transient ischemic attack)[4]. The presence of each risk factor would add 1 point, except for the stroke/transient ischemic attack, which would add 2 points to the total score. Patients were stratified as low, intermediate and high risk for ischemic stroke if their total $CHADS_2$ scores were equal to 0, 1 and ≥2, respectively.
        To identify risk factors predicting warfarin use among NVAF patients, logistic regression analyses with each risk factor as an independent variable were performed, and results were presented as odd ratios with their 95% confidence intervals. A p-value of less than 0.05 was considered statistically significant.

Results
Patient characteristics
        The present study identified 513 individual AF patients who presented to the clinic between June 1 and September 30, 2008. Of these, 369 patients had no known valvular heart disease or replacement and classified as NVAF. Only data from the most recent visits (the index visit) of these NVAF patients were recruited for further analysis. Table 1 revealed that compared to all AF patients, NVAF patients comprised a lower proportion of female patients (52.8% vs. 47.7%); however, NVAF patients were older with mean age of 71.7±9.1 years. The three most prevalent

co-morbidities among NVAF patients included hypertension (42.3%), ischemic heart disease (18.2%), and chronic heart failure (14.9%).

Patterns and adherence to guidelines of antithrombotic therapy

Table 2 revealed that a slightly higher proportion of all AF patients received warfarin as antithrombotic therapy than NVAF patients (67.3% vs. 58.8%). Whereas NVAF patients received only antiplatelets or no antithrombotics, more than all AF patients did. About 10% of NVAF patients were

Table 1. Characteristics of all (n = 513) and nonvalvular (n = 369) AF patients

Characteristics	All AF n (%)	Nonvalvular AF n (%)
Gender		
Female	271 (52.8)	181 (47.7)
Age (years)		
≤64	216 (42.1)	109 (29.5)
65-74	154 (30.0)	134 (36.3)
≥75	143 (27.9)	126 (34.2)
Mean (years±SD)	65.7±13.0	71.7±9.1
Co-morbidities		
Hypertension	184 (35.9)	156 (42.3)
Valvular heart disease	144 (28.1)	0 (0)
Ischemic heart disease	71 (13.8)	67 (18.2)
Congestive heart failure	66 (12.9)	55 (14.9)
Diabetes mellitus	65 (12.7)	49 (13.3)
Ischemic stroke/TIA	60 (11.7)	47 (12.7)
Thyrotoxicosis	43 (8.4)	38 (10.3)

TIA = transient ischemic attack

prescribed warfarin plus antiplatelets combination with the majority receiving warfarin and aspirin combination (9.2% of the total NVAF patients). Among NVAF patients who received only antiplatelets (26.3%), aspirin was a major antithrombotic agent prescribed.

When stratified according to the CHADS$_2$ score, 104 (28.2%), 127 (34.4%) and 138 (37.4%) patients were classified as low (CHADS$_2$ score = 0), intermediate (CHADS$_2$ score = 1) and high (CHADS$_2$ score ≥2) risk for ischemic stroke, respectively (Table 3). As shown in Table 3, aspirin or no antithrombotics was recommended for patients at low risk. For patients at intermediate risk, either an anticoagulant or aspirin was recommended, depending on the level of benefit and harm associated with the bleeding risk. Without contraindications, NVAF patients at high-risk for ischemic stroke were recommended to receive an anticoagulant as antithrombotics by all relevant guidelines[1-4]. In the present study, NVAF patients classified as low and intermediate risk were prescribed warfarin as antithrombotic therapy in 51.0% and 52.8%, respectively. Among high-risk patients, 97 (70.3%) were prescribed warfarin while 27 (19.6%) and 14 (10.1%) patients received only antiplatelets or no antithrombotic therapy, respectively (Table 3, Fig. 1).

Predictors of anticoagulation therapy in NVAF patients

To identify risk factors predicting the use of anticoagulant in NVAF patients, logistic regression analyses with each risk factor as an independent variable were performed. Table 4 disclosed that only history of ischemic stroke/transient ischemic attack significantly predicted the warfarin use among all

Table 2. Patterns of antithrombotic use in all (n = 513) and nonvalvular (n = 369) AF patients

Antithrombotics	All AF, n (%)	Nonvalvular AF, n (%)
Oral anticoagulation	345 (67.3)	217 (58.8)
Warfarin	301 (58.7)	179 (48.5)
Warfarin + aspirin	40 (7.8)	34 (9.2)
Warfarin + ticlopidine	2 (0.4)	2 (0.5)
Warfarin + cilostazol	1 (0.2)	1 (0.3)
Warfarin + aspirin + clopidogrel	1 (0.2)	1 (0.3)
Only antiplatelets	108 (21.1)	97 (26.3)
Aspirin	91 (17.7)	83 (22.5)
Ticlopidine	7 (1.4)	5 (1.4)
Clopidogrel	6 (1.2)	6 (1.6)
Aspirin+clopidogrel	2 (0.4)	1 (0.3)
Aspirin+cilostazol	1 (0.2)	1 (0.3)
Aspirin+dipyridamole	1 (0.2)	1 (0.3)
No antithrombotics	60 (11.7)	55 (14.9)

Table 3. Antithrombotic therapy in NVAF patients (n = 369) stratified according to CHADS$_2$ scores

CHADS$_2$ score	Recommended antithrombotics	Total n (%)[a]	Warfarin[b] n (%)[c]	Only antiplatelets n (%)[c]	No antithrombotics n (%)[c]
0	Aspirin or no antithrombotics	104 (28.2)	53 (51.0)	25 (24.0)	26 (25.0)
1	Anticoagulant or aspirin	127 (34.4)	67 (52.8)	45 (35.4)	15 (11.8)
2	Anticoagulant	88 (23.8)	62 (70.5)	15 (17.0)	11 (12.5)
3		36 (9.8)	27 (75.0)	7 (19.4)	2 (5.6)
4		11 (3.0)	6 (54.5)	4 (36.4)	1 (9.1)
5		3 (0.8)	2 (66.7)	1 (33.3)	0 (0.0)

[a] Percentages were calculated from the total number of NVAF patients (n = 369).
[b] These numbers include patients who received only warfarin as well as warfarin plus antiplatelets combination.
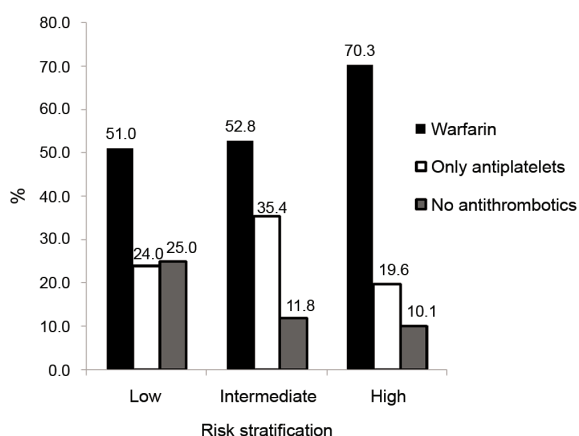[c] Percentages were calculated based on the total number of patients in each CHADS$_2$ score category.

Table 4. Univariate analysis of risk factors predicting warfarin use in NVAF patients (n = 369)

Risk factors	Total	Warfarin prescribed, n (%)	OR	95% CI	p-value
Ischemic stroke/TIA	47	34 (72.3)	1.99	1.01-3.91	0.04
Congestive heart failure	55	39 (70.9)	1.86	1.00-3.47	0.05
Hypertension	156	96 (61.5)	1.22	0.80-1.85	0.36
Age ≥75	116	71 (61.2)	1.16	0.74-1.81	0.53
Diabetes mellitus	49	32 (65.3)	1.37	0.73-2.58	0.32
Female gender	181	101 (55.8)	0.78	0.52-1.19	0.25
Ischemic heart disease	67	39 (58.2)	0.97	0.57-1.66	0.91
Thyrotoxicosis	38	23 (60.5)	1.08	0.52-2.15	0.82

TIA = transient ischemic attack

NVAF patients (OR 1.99; 95% CI 1.01-3.91; p = 0.047). History of congestive heart failure also marginally predicted the warfarin use (OR 1.86; 95% CI 1.00-3.47; p = 0.05). However, none of the risk factors independently predicted the warfarin use in a multivariable logistic regression analysis when all risk factors in Table 4 were entered as covariates (results not shown).

Discussion

Anticoagulant therapy is highly effective in prevention of ischemic stroke in patients with AF. A meta-analysis revealed that adjusted-dose warfarin reduced stroke by 60% and appeared more effective than aspirin by 40% in NVAF patients[12]. Thus, all AF-related guidelines recommend anticoagulants for AF patients at high risk of ischemic stroke[1-4]. The results of the present study demonstrated that 70% of the high-risk NVAF patients received warfarin as an antithrombotic agent. This finding is consistent with a study from Japan, reporting that 75% of high-risk NVAF patients (defined as CHADS$_2$ score ≥2) were prescribed warfarin[11]. However, in a recent study conducted in the U.S. reported that only 42% of high-risk NVAF patients (defined as CHADS$_2$ score ≥3) received warfarin as antithrombotic agent[5]. The

Fig. 1 Antithrombotic therapy in nonvalvular AF patients stratified according to the risk levels (low risk: CHADS$_2$ = 0; intermediate risk: CHADS$_2$ = 1; high risk: CHADS$_2$ ≥2).

disparity observed among these studies could be explained partly by the difference in the study population and setting. In the present study and the study from Japan, most of the NVAF patients were receiving care in academic institutions from cardiologists or medical specialists, who possibly had more experiences in anticoagulation management and thus were more likely to adhere to the practice guidelines. In contrast, the study by Zimetbaum and colleagues[5] was conducted in a large number of NVAF patients who possibly received care from both specialty and non-specialty providers, thus accounting for the observed differences. In support of this notion, at least two recent studies revealed that management of AF patients by cardiologists led to a high proportion of high-risk AF patients receiving anticoagulant therapy[13,14]. Meiltz and colleagues reported that 92% of NVAF patients, who had $CHADS_2$ score ≥2 and received care from cardiologists, were prescribed anticoagulants for stroke prophylaxis[13]. In the other study, Vassilikos et al reported that anticoagulants were more prescribed by cardiologists than non-cardiologists (79% vs. 50%) for high-risk AF patients[14]. Taken together, it is conceivable that a higher proportion of high-risk AF patients may receive a more evidence-based care, particularly with regard to antithrombotic therapy, if they are managed by cardiologists or medical specialists who are probably more familiar with the anticoagulation therapy. Therefore, it is the aim of the future study to investigate antithrombotic therapy in Thai NVAF patients who receive medical care from non-specialty providers, and to compare patterns of antithrombotic use to the present study. The result may have an implication for improving quality of care for AF patients who receive care from a different practice setting.

Although 70% of the high-risk patients were prescribed warfarin as recommended by practice guidelines in the current study, there still existed much room for improvement. Several reasons have been cited for anticoagulants not being prescribed in AF patients. One of the most common reasons involved fear of bleeding risk from anticoagulant use. Choudhry et al observed that physicians were less likely to prescribe warfarin for other patients after one of their patients experienced a major bleeding from warfarin[15]. In addition, Gattellari and colleagues found that Australian family physicians would not prescribe warfarin for their AF patients at high-risk for ischemic stroke if they perceived their patients at risk for bleeding, e.g. those at risk for minor falls, having

peptic ulcers or frequent nose bleed[16]. Thus, targeting at psychological factors leading to the underuse of anticoagulation should be considered as a part of strategies to optimize thromboprophylaxis in AF patients. In this regard, it is important to convey the message to practitioners that in most high-risk patients, ischemic stroke rates without anticoagulation are markedly higher (five- to eight-fold) than bleeding rates[17]. Therefore, most AF patients at high risk of thromboembolism will benefit from anticoagulant therapy, including those at high bleeding risk. In addition, an algorithm to assess bleeding risk among AF patients (namely, HAS-BLED abbreviated for Hypertension, Abnormal renal/liver function, Stroke, Bleeding history, Labile INR, Elderly, Drugs/alcohol concomitantly) had recently been recommended by the European Society of Cardiology and the Canadian Cardiovascular Society guidelines[3,18,19]. This evaluation tool may provide practitioners with a simple and more objective assessment of bleeding risk and guide their decision on anticoagulation initiation. Whether the algorithm for assessment of bleeding risk, such as HAS-BLED, will prove useful in anticoagulation management among AF patients should be the subject of further investigation.

Another important finding involved the overuse of anticoagulants in 50% of NVAF patients who were stratified as low risk for ischemic stroke in the present study. Consistent with this observation, the Euro Heart Survey also reported 40 to 50% of low-risk patients receiving anticoagulants as antithrombotic agents[6]. Further, Go et al[20] also found that 48.9% of patients stratified as low risk were prescribed warfarin. However, all relevant guidelines[1-4] recommend low-risk patients to receive aspirin or no antithrombotics because benefits from anticoagulation therapy usually do not outweigh the harm associated with bleeding. The basis for a discrepancy observed between the antithrombotic recommendations and real-life practice in low-risk NVAF patients has not been scrutinized and deserves attention.

Identification of independent risk factors associated with anticoagulant use may provide insights into the clinician's perception of thromboembolic risk for stroke among NVAF patients. A history of ischemic stroke/transient ischemic attack and congestive heart failure were found to predict anticoagulant use in univariate analyses in the present study. However, none of the risk factors independently predicted anticoagulant use in multivariate analyses. A few possible explanations could be provided for not observing any independent

effects of these risk factors on anticoagulant use. First, these thromboembolic risk factors often occur in clusters in each patient, thus making it difficult to observe any independent effects of each risk factor in multivariable analysis. Second, clinicians may have not prescribed anticoagulant therapy based solely on the presence of single risk factor, thus none of the risk factors became an independent predictor of anticoagulant use in the present study. Third, the small sample size may limit the statistical power of logistic regression analysis in the present study. Nonetheless, previous studies have reported a history of ischemic stroke as an independent risk factor for anticoagulant use in AF patients[20,21].

Some limitations of the present study merit discussion. First, this study was a cross-sectional design, thus persistence of anticoagulation therapy in long-term could not be determined. A previous study reported that the likelihood of AF patients remaining on anticoagulant therapy was lower than 70% in one year[22]; therefore, it is plausible that the proportion of high-risk AF patients on anticoagulants in the present study would be lower in long-term follow-up. Second, potential contraindications to anticoagulant use had not been accounted for in the present study; thus, adherence to the antithrombotic guideline could have been higher. In this regard, previous studies[20,23,24] have reported that 13 to 15% of AF patients were with contraindications to anticoagulant therapy; therefore, taken this into account the adherence to antithrombotic therapy in this study may become higher than 70% among high-risk patients. Third, this study was conducted in an ambulatory care clinic affiliated with tertiary care hospitals, where there were more specialty practitioners providing services than general practitioners. Thus, generalizability of the results to other types of practice setting with more general practitioners may be limited. Last, several newer oral anticoagulants have become available recently; as a result the pattern of prescribing oral anticoagulants for NVAF patients could have changed since the time of this study was conducted. However, the findings in the present study are much consistent with those of the recently published studies[11,14], suggesting that the observed results in the present study likely remains valid.

Conclusion

The present study has demonstrated that a proportion of non-valvular AF patients at high-risk for ischemic stroke had not received anticoagulation therapy as recommended by relevant guidelines. Further, low-risk patients were over-treated by anticoagulants. The finding should prompt health care policy makers to take action to improve quality of care for these patients.

Potential conflicts of interest

None.

References

1. Fuster V, Ryden LE, Cannom DS, Crijns HJ, Curtis AB, Ellenbogen KA, et al. 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. Circulation 2011; 123: e269-367.
2. Singer DE, Albers GW, Dalen JE, Fang MC, Go AS, Halperin JL, et al. Antithrombotic therapy in atrial fibrillation: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). Chest 2008; 133: 546S-92S.
3. Camm AJ, Kirchhof P, Lip GY, Schotten U, Savelieva I, Ernst S, et al. Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). Eur Heart J 2010; 31: 2369-429.
4. Gage BF, Waterman AD, Shannon W, Boechler M, Rich MW, Radford MJ. Validation of clinical classification schemes for predicting stroke: results from the National Registry of Atrial Fibrillation. JAMA 2001; 285: 2864-70.
5. Zimetbaum PJ, Thosani A, Yu HT, Xiong Y, Lin J, Kothawala P, et al. Are atrial fibrillation patients receiving warfarin in accordance with stroke risk? Am J Med 2010; 123: 446-53.
6. Nieuwlaat R, Capucci A, Lip GY, Olsson SB, Prins MH, Nieman FH, et al. Antithrombotic treatment in real-life atrial fibrillation patients: a report from the Euro Heart Survey on Atrial Fibrillation. Eur Heart J 2006; 27: 3018-26.
7. Singh P, Arrevad PS, Peterson GM, Bereznicki

LR. Evaluation of antithrombotic usage for atrial fibrillation in aged care facilities. J Clin Pharm Ther 2011; 36: 166-71.

8. Ogilvie IM, Newton N, Welner SA, Cowell W, Lip GY. Underuse of oral anticoagulants in atrial fibrillation: a systematic review. Am J Med 2010; 123: 638-45.

9. Leung CS, Tam KM. Antithrombotic treatment of atrial fibrillation in a regional hospital in Hong Kong. Hong Kong Med J 2003; 9: 179-85.

10. Lin LJ, Cheng MH, Lee CH, Wung DC, Cheng CL, Kao Yang YH. Compliance with antithrombotic prescribing guidelines for patients with atrial fibrillation—a nationwide descriptive study in Taiwan. Clin Ther 2008; 30: 1726-36.

11. Uchiyama S, Shibata Y, Hirabayashi T, Mihara B, Hamashige N, Kitagawa K, et al. Risk factor profiles of stroke, myocardial infarction, and atrial fibrillation: a Japanese Multicenter Cooperative Registry. J Stroke Cerebrovasc Dis 2010; 19: 190-7.

12. Hart RG, Pearce LA, Aguilar MI. Meta-analysis: antithrombotic therapy to prevent stroke in patients who have nonvalvular atrial fibrillation. Ann Intern Med 2007; 146: 857-67.

13. Meiltz A, Zimmermann M, Urban P, Bloch A. Atrial fibrillation management by practice cardiologists: a prospective survey on the adherence to guidelines in the real world. Europace 2008; 10: 674-80.

14. Vassilikos VP, Mantziari A, Goudis CA, Paraskevaidis S, Dakos G, Giannakoulas G, et al. Differences in management of atrial fibrillation between cardiologists and non-cardiologists in Greece. Hellenic J Cardiol 2010; 51: 113-21.

15. Choudhry NK, Anderson GM, Laupacis A, Ross-Degnan D, Normand SL, Soumerai SB. Impact of adverse events on prescribing warfarin in patients with atrial fibrillation: matched pair analysis. BMJ 2006; 332: 141-5.

16. Gattellari M, Worthington J, Zwar N, Middleton S. Barriers to the use of anticoagulation for nonvalvular atrial fibrillation: a representative survey of Australian family physicians. Stroke 2008; 39: 227-30.

17. Lip GY, Andreotti F, Fauchier L, Huber K, Hylek E, Knight E, et al. Bleeding risk assessment and management in atrial fibrillation patients: a position document from the European Heart Rhythm Association, endorsed by the European Society of Cardiology Working Group on Thrombosis. Europace 2011; 13: 723-46.

18. 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: 1093-100.

19. Cairns JA, Connolly S, McMurtry S, Stephenson M, Talajic M. Canadian Cardiovascular Society atrial fibrillation guidelines 2010: prevention of stroke and systemic thromboembolism in atrial fibrillation and flutter. Can J Cardiol 2011; 27: 74-90.

20. Go AS, Hylek EM, Borowsky LH, Phillips KA, Selby JV, Singer DE. Warfarin use among ambulatory patients with nonvalvular atrial fibrillation: the anticoagulation and risk factors in atrial fibrillation (ATRIA) study. Ann Intern Med 1999; 131: 927-34.

21. Stafford RS, Singer DE. Recent national patterns of warfarin use in atrial fibrillation. Circulation 1998; 97: 1231-3.

22. Gallagher AM, Rietbrock S, Plumb J, van Staa TP. Initiation and persistence of warfarin or aspirin in patients with chronic atrial fibrillation in general practice: do the appropriate patients receive stroke prophylaxis? J Thromb Haemost 2008; 6: 1500-6.

23. Frykman V, Beerman B, Ryden L, Rosenqvist M. Management of atrial fibrillation: discrepancy between guideline recommendations and actual practice exposes patients to risk for complications. Eur Heart J 2001; 22: 1954-9.

24. Kalra L, Yu G, Perez I, Lakhani A, Donaldson N. Prospective cohort study to determine if trial efficacy of anticoagulation for stroke prevention in atrial fibrillation translates into clinical effectiveness. BMJ 2000; 320: 1236-9.

รูปแบบและการยึดตามแนวทางปฏิบัติในการสั่งใช้ยาต้านการเกิดลิ่มเลือดในผู้ป่วยไทยที่มีภาวะ *nonvalvular atrial fibrillation*

อรัมษ์ เจษฎาญานเมธา

ภูมิหลัง: ยาต้านการเกิดลิ่มเลือดมีความสำคัญในผู้ป่วย *atrial fibrillation* เพื่อป้องกันการเกิดภาวะแทรกซ้อนจากลิ่มเลือดอุดตันหลอดเลือดแดงภายในร่างกาย โดยเฉพาะอย่างยิ่งหลอดเลือดแดงภายในสมอง การศึกษาจำนวนมากที่ทำในประเทศแถบอเมริกาเหนือและยุโรปพบว่า ผู้ป่วย *atrial fibrillation* ที่มีความเสี่ยงสูงต่อการเกิดลิ่มเลือดอุดตันในหลอดเลือดแดงไม่ได้รับยาต้านการเกิดลิ่มเลือดอย่างเหมาะสมตามแนวทางปฏิบัติ อย่างไรก็ตามการศึกษาในลักษณะดังกล่าวจากประเทศในเอเชียมีอยู่น้อยมาก

วัตถุประสงค์: เพื่อศึกษาถึงรูปแบบและการยึดตามแนวทางปฏิบัติในการสั่งใช้ยาต้านการเกิดลิ่มเลือดในผู้ป่วยนอกที่มีภาวะ *nonvalvular atrial fibrillation*

วัสดุและวิธีการ: จากฐานข้อมูลอิเล็กทรอนิกส์ ข้อมูลของผู้ป่วยภาวะ *atrial fibrillation* ที่มารับการรักษาในคลินิกผู้ป่วยนอกระหว่างวันที่ 1 มิถุนายน ถึง 30 กันยายน พ.ศ. 2551 โดยดึงข้อมูลยาต้านการเกิดลิ่มเลือดที่ได้รับการสั่งจ่ายและปัจจัยเสี่ยงของการเกิดภาวะลิ่มเลือดอุดตัน เพื่อพิจารณาถึงรูปแบบและการยึดตามแนวทางปฏิบัติในการสั่งใช้ยาต้านการเกิดลิ่มเลือด ตามระดับความเสี่ยงโดยใช้คะแนน $CHADS_2$

ผลการศึกษา: จากผู้ป่วย *atrial fibrillation* ทั้งหมด 513 ราย พบ 369 ราย เป็นผู้ป่วยที่ไม่มีโรคลิ้นหัวใจหรือได้รับการเปลี่ยนลิ้นหัวใจ จึงถูกนำมาวิเคราะห์ข้อมูลต่อไป ในผู้ป่วย *nonvalvular atrial fibrillation* นี้ 138 ราย (37.4%), 127 ราย (34.4%) และ 104 ราย (28.2%) จัดเป็นผู้ป่วยที่มีความเสี่ยงสูง (คะแนน $CHADS_2 \geq 2$) ปานกลาง ($CHADS_2 = 1$) และ ต่ำ ($CHADS_2 = 0$) ต่อการเกิดภาวะลิ่มเลือดอุดตันในหลอดเลือดสมอง ตามลำดับ ผู้ป่วยที่ถูกจัดว่ามีความเสี่ยงต่ำและปานกลางได้รับการสั่งจ่ายยาวาร์ฟาริน ร้อยละ 51.0 และ 52.8 ตามลำดับ ส่วนกลุ่มผู้ป่วยที่จัดว่ามีความเสี่ยงสูง ร้อยละ 70.3 ได้รับการสั่งจ่ายยาวาร์ฟาริน ร้อยละ 19.6 ได้รับการสั่งจ่ายยาต้านเกล็ดเลือด และอีกร้อยละ 10.1 ไม่ได้รับยาต้านการเกิดลิ่มเลือด

สรุป: การศึกษานี้ได้แสดงให้เห็นว่า มีสัดส่วนของผู้ป่วย *nonvalvular atrial fibrillation* ที่มีความเสี่ยงสูงต่อการเกิดภาวะลิ่มเลือดอุดตันของหลอดเลือดในสมอง ยังไม่ได้รับการสั่งจ่ายยาต้านปัจจัยแข็งตัวของเลือดตามที่แนวทางปฏิบัติแนะนำ นอกจากนี้ผู้ป่วยกลุ่มที่จัดว่ามีความเสี่ยงต่ำยังได้รับการสั่งใช้ยาต้านปัจจัยแข็งตัวของเลือดโดยไม่จำเป็นอีกด้วย ผลการศึกษานี้น่าจะมีผลให้ผู้มีส่วนวางนโยบายสุขภาพได้ส่งเสริมการพัฒนาคุณภาพในการดูแลผู้ป่วยกลุ่มนี้ต่อไป