Postprint: Multicenter Analysis of Clinical Characteristics and Treatment Status in 4011 Patients with Atrial Fibrillation and Heart Failure in Chongqing

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Abstract

Abstract Objective To investigate the clinical characteristics and treatment status of patients with atrial fibrillation complicated with heart failure in the Chongqing area. Methods A total of 4011 hospitalized patients with atrial fibrillation and heart failure admitted to 21 hospitals in Chongqing from January 1, 2018 to December 31, 2018 were included. Data on patient history, general condition, comorbidities, auxiliary examinations, and treatment plans were collected from the electronic medical record system. The baseline data of these patients were analyzed and compared, and grouped analyses were performed according to age and hospital level. Results The mean age of the 4011 patients with atrial fibrillation and heart failure was $(74.0\$\pm10.6)years, themajority(83.4\pm\$9.21)$ mm. The main type of heart failure in included patients was HFpEF (66.2%), beta-blockers were used in 61.6%, digoxin in 17.6%, and the total usage rate of ACEI/ARB drugs was 59.7%. Regarding antithrombotic therapy, the overall anticoagulation rate was 47.1%, antiplatelet rate was 44.6%, with warfarin being the main anticoagulant (37.8%), and use of novel oral anticoagulants was only 9.3%. In older age groups, the proportion of high CHA2DS2-VASc scores was larger, but anticoagulation rate was lower and antiplatelet rate was higher ($P<0.001$). Moreover, the overall anticoagulation rate and the usage rates of warfarin and NOACs in secondary hospitals were significantly lower than those in tertiary hospitals ($P<0.001$). Conclusion The results of this study indicate that most patients with atrial fibrillation and heart failure in Chongqing are at high risk of thromboembolism, while less than 1/4 are at high risk of bleeding, but antithrombotic rates across all age groups and hospital levels remain unsatisfactory, the treatment status for heart failure improvement shows a large gap from guideline recommendations, and physicians at all levels of

hospitals should further improve their understanding and standardize diagnosis and treatment.

Full Text

A Multicenter Analysis: Clinical Characteristics and Treatment Status of 4,011 Patients with Atrial Fibrillation Complicated by Heart Failure in Chongqing

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Abstract

Objective: To investigate the clinical characteristics and current treatment status of patients with atrial fibrillation (AF) complicated by heart failure (HF) in the Chongqing region.

Methods: We conducted a cross-sectional study of 4,011 patients with AF and HF admitted to 21 hospitals in Chongqing between January 1 and December 31, 2018. Clinical data including medical history, demographics, comorbidities, auxiliary examinations, and treatment regimens were extracted from electronic medical record systems. Baseline characteristics were analyzed and compared across different age groups and hospital tiers.

Results: The mean age of the 4,011 patients was $(74.0\$\pm10.6)years, with83.4\pm9.21)mm.ThepredominantHFs$ VASc scores but lower anticoagulation rates and higher antiplatelet use (P<0.001). Secondary hospitals had significantly lower overall anticoagulation rates and usage of both warfarin and NOACs compared to tertiary hospitals (P<0.001).

Conclusion: This study reveals that most AF patients with HF in Chongqing are at high risk for thromboembolism, yet fewer than one-quarter are at high bleeding risk. However, antithrombotic therapy rates remain suboptimal across all age groups and hospital tiers, and HF management shows considerable gaps compared with guideline recommendations. Physicians at all levels of care need to enhance their understanding and standardize diagnostic and therapeutic practices.

Keywords: atrial fibrillation; heart failure; treatment status; cross-sectional study

1.1 Study Population

This cross-sectional survey was conducted across 21 general hospitals in Chongqing selected by random sampling in 2013, including 11 tertiary hospitals and 10 secondary hospitals, covering 20 municipal districts (Yuzhong, Tongliang, Liangping, Changshou, Hechuan, Kaizhou, Wanzhou, Yongchuan, Dazu, Jiangjin, Banan, Bishan, Wansheng Economic Development Zone, Beibei, Shapingba, Nan' an, Dadukou, Jiulongpo, Jiangbei, and Qijiang). The participating institutions were: The First Affiliated Hospital of Chongqing Medical University, Tongliang District People' s Hospital, Liangping District People' s Hospital, Changshou District People' s Hospital, Hechuan District People' s Hospital, Kaizhou District People' s Hospital, Three Gorges Hospital of Chongqing University, Yongchuan District People' s Hospital, Dazu District People' s Hospital, Jiangjin District Central Hospital, Banan District People' s Hospital, Bishan District People' s Hospital, Wansheng District People' s Hospital, Chongqing Ninth People' s Hospital, Chongqing Medical University Affiliated University Town Hospital, Qijiang District People' s Hospital, Chongqing People' s Hospital, Chongqing Fifth People' s Hospital, Chongqing Iron and Steel General Hospital, Chongqing Thirteenth People' s Hospital, and Chongqing Red Cross Hospital. Study subjects were drawn from hospitalized patients in these hospitals.

1.2 Inclusion and Exclusion Criteria

We extracted patients with discharge diagnoses of both atrial fibrillation and heart failure from the electronic medical record systems of participating hospitals. After applying inclusion and exclusion criteria, 4,011 patients were enrolled. **Inclusion criteria:** (1) Documented AF on standard ECG or 24-hour Holter monitoring, or documented history of AF in medical records; (2) Met diagnostic criteria for HF according to the 2018 Chinese Guidelines for the Diagnosis and Treatment of Heart Failure: presence of HF symptoms and/or signs, NT-proBNP >125 ng/L and/or BNP >35 ng/L, plus evidence of cardiac structural and/or functional abnormalities; (3) NYHA functional class II-IV; (4) Hospital discharge date between January 1, 2018 and December 31, 2018. **Exclusion criteria:** (1) Patients with unstable vital signs or death during hospitalization; (2) Incomplete medical records, including missing echocardiography reports or cardiac function data; (3) Hospital stay <1 day; (4) For patients with multiple admissions within one year, only the last hospitalization was included.

1.3 Data Collection

All investigators received standardized training using a uniform protocol before the study commenced. Clinical data were collected and recorded from electronic medical record systems, including name, sex, age, comorbidities, AF type, NYHA functional class, history of thromboembolism, history of bleeding, medication use (antithrombotic agents, rhythm/rate control drugs, ACEI/ARB agents, cardiac glycosides, etc.), and echocardiographic findings. CHA_2DS_2-

VASc scores were calculated to determine thromboembolic risk stratification, with scores $ $2 indicating high risk, 1 indicating intermediate risk, and 0 indicating low risk. HAS-BLED scores were calculated to determine bleeding risk stratification, with scores $ $3 indicating high bleeding risk.

1.4 Definitions

Atrial fibrillation was defined as the loss of regular, organized atrial electrical activity resulting in disorganized, rapid fibrillatory waves. According to AF guidelines, valvular AF refers to AF occurring in the setting of rheumatic mitral stenosis, mechanical/bioprosthetic valve replacement, or mitral valve repair. Paroxysmal AF was defined as AF terminating within 7 days of onset; persistent AF as lasting >7 days; and long-standing persistent AF as lasting >1 year.

Based on HF guidelines, heart failure was classified by left ventricular ejection fraction (LVEF) into HFrEF (LVEF <40%), HFmrEF (LVEF 40-49%), and HFpEF (LVEF $ $50%). Stroke was defined as focal or global neurological dysfunction of rapid onset lasting >24 hours or resulting in death, after exclusion of non-vascular causes. Coronary artery disease diagnosis was based on clinical symptoms or confirmed by coronary CT angiography or invasive coronary angiography.

1.5 Grouping Analysis

To evaluate the clinical characteristics and treatment status of this population, patients were stratified by age into <65 years, 65-75 years, and >75 years groups, and by hospital level into secondary and tertiary hospital groups. Comparisons were made across groups for sex, etiology, AF type, CHA_2DS_2-VASc score, HAS-BLED score, NYHA class, left atrial diameter, left ventricular diameter, LVEF, endpoint events (thromboembolism and bleeding), and medication regimens.

1.6 Statistical Methods

Statistical analysis was performed using SPSS 25.0 software. Continuous variables were expressed as mean ± standard deviation. Normality testing was performed for all continuous variables; those with normal or approximately normal distribution were compared between two groups using independent samples t-test and across multiple groups using one-way ANOVA, while non-normally distributed variables were analyzed using rank-sum tests. Categorical data were expressed as percentages and compared using chi-square tests or Fisher' s exact test when conditions for chi-square were not met. Statistical significance was defined as P<0.001.

2.1 Baseline Characteristics

Baseline characteristics of enrolled patients are shown in Table 1 . The cohort was predominantly elderly with a mean age of $(74.0\$\pm10.6)years; 43.2\pm9.21)mm, meanleftventricularend-$

$diastolic diameter (LVIDd) was (48.45 \pm 10.06) mm, and mean LVEF was (54.23 \pm \$11.94)\%$. HFpEF was the predominant HF subtype (66.2%). The overall thromboembolic event rate was 13.2%, and bleeding event rate was 4.4%.

2.2 Age Group Comparisons

Among general characteristics, female patients outnumbered males, with the highest proportion in the >75 years group (P<0.001). Older age was associated with higher rates of coronary artery disease, hypertension, chronic kidney disease, peripheral artery disease, anemia, and chronic obstructive pulmonary disease (all P<0.001), while cardiomyopathy was more prevalent in the <65 years group (P<0.001). Valvular AF was most common in the <65 years group and least common in the >75 years group (P<0.001). Mean CHA_2DS_2-VASc score was $(3.94\$ \pm 1.49) and mean HAS-BLED score was (1.72±0.95) for the entire cohort. Figure 1 [Figure 1 : see original paper] shows the CHA{2}DS{2}-VASc score-age scatter plot, with scores ranging from 1 to 9, and the proportion of high scores increasing with age.

As shown in Table 1, the overall anticoagulation rate was 47.1% and antiplatelet therapy 44.6%, with single antiplatelet therapy being most common (38.8%). The proportion of patients receiving no antithrombotic therapy was 17.2%. Anticoagulation rates across age groups were 63.4% vs. 51.1% vs. 38.9% (P<0.001). Warfarin was the predominant anticoagulant (37.8%), while NOACs were used in only 9.3% of patients. Warfarin use was significantly higher than NOACs (dabigatran, rivaroxaban) and decreased with older age groups (P<0.001), whereas NOAC use showed no significant differences across age groups. No significant differences were observed across age groups regarding pharmacological or radiofrequency cardioversion.

Figure 2 [Figure 2: see original paper] demonstrates that patients <65 years had higher anticoagulation than antiplatelet rates, those 65-75 years had similar rates, and those >75 years had higher antiplatelet than anticoagulation rates. Anticoagulation rates declined with increasing age, while antiplatelet use increased (P<0.001). Thromboembolic event rates were highest in the >75 years group (15.0%), with no significant differences in bleeding events across groups.

The proportion of HFpEF increased with age, as did mean LAD and LVIDd (P<0.001). Rate control was used in 78.8% of patients, with beta-blocker use at 61.6% and digoxin at 17.6%, both increasing with age (P<0.001). Regarding upstream therapy, ACEI/ARB use was 59.7% overall, reaching 69.4% in the >75 years group and increasing with age (P<0.001). Non-pharmacological therapy was uncommon, with ICD (implantable cardioverter-defibrillator) use at only 0.8%.

2.3 Comparison Between Secondary and Tertiary Hospitals

As shown in Table 2 , no significant differences were observed between secondary and tertiary hospitals in mean age, sex distribution, mean LAD, mean LVEF, ACEI/ARB use, or beta-blocker use. Secondary hospitals had higher rates of coronary artery disease and hypertension (P<0.001). Tertiary hospitals had a higher proportion of NYHA class IV patients (P<0.001) and a higher proportion of HFrEF (P=0.005). Thromboembolic event rates were lower in secondary hospitals (11.3% vs. 11.3%, P=0.003), with no significant difference in bleeding events (P=0.020). Overall, mean CHA_2DS_2-VASc and HAS-BLED scores did not differ significantly between hospital levels.

Figure 3 [Figure 3: see original paper] shows that all enrolled patients had CHA_2DS_2-VASc scores $ $1, with the highest proportion scoring 4 points (27.6% in secondary hospitals, 27.7% in tertiary hospitals). The vast majority were at high thromboembolic risk (96.8% in secondary hospitals, 95.9% in tertiary hospitals). Figure 4 [Figure 4: see original paper] demonstrates that most patients had HAS-BLED scores <3, with the highest proportion scoring 2 points (43.9% in secondary hospitals, 38.0% in tertiary hospitals). The proportion at high bleeding risk was relatively low (16.7% in secondary hospitals, 18.8% in tertiary hospitals).

Compared with tertiary hospitals, secondary hospitals had significantly lower overall anticoagulation rates and usage of both warfarin and NOACs (36.7% vs. 53.5%, P<0.001; 31.9% vs. 41.4%, P<0.001; 4.7% vs. 12.1%, P<0.001). However, secondary hospitals had higher antiplatelet use (50.1% vs. 41.2%, P<0.001). No significant difference was observed in rate control strategies, though tertiary hospitals had higher digoxin prescription rates (P<0.001).

3. Discussion

Epidemiological surveys in China indicate an AF prevalence of approximately 0.77%, with higher rates in the elderly (0.9% in men, 0.7% in women, male-to-female ratio ~1.2) [10]. Our cohort of AF patients with HF had a mean age of (74.0$±$10.6) years and a male-to-female ratio of ~0.8, consistent with these findings. Most patients (83.4%) had NVAF, with valvular AF accounting for only 16.6%, and persistent AF being the predominant type (55.9%). The higher proportion of valvular AF in HF patients may reflect its stronger association with HF development. The leading comorbidities were coronary artery disease (65.1%), hypertension (51.0%), and diabetes mellitus (17.5%). Numerous studies have identified these conditions, along with advancing age, as the most important risk factors for AF [11][12]. With rising prevalence of coronary artery disease, hypertension, and diabetes in China—shared risk factors for both AF and HF—the burden of AF complicated by HF is expected to increase further.

Atrial fibrillation is an independent risk factor for stroke, with approximately 5% of patients experiencing embolic events annually, of which ischemic stroke

accounts for 15-33% [14]. Heart failure creates a hypercoagulable state that significantly increases stroke and systemic embolic risk in AF patients [15][16]. Studies show that AF patients with CHA_2DS_2-VASc scores $ $2 (men) or $ $3(women)havehigherembolic event rates, butadequate anticoagulation provides clear net clinical benefit by eff
VASc scores $ $2 (men) or $ $3 (women) should receive long-term anticoagulation without contraindications, with NOACs as the preferred strategy. Developed countries have higher anticoagulation rates, with Europe achieving the highest oral anticoagulant use (90.2%) and Asia the lowest (57.4%) [18]. Our study found an overall anticoagulation rate of 47.1% in Chongqing' s AF-HF population—substantially improved from rates over a decade ago (<3%) and from our group' s previous findings five years ago (11.5%) [19][20], yet still below the 2018 national average (47.1% vs. 56.7%, P<0.001) [21] and lagging behind both Asian and European rates. Notably, anticoagulation rates decreased with age despite no significant difference in bleeding events across age groups, suggesting that advanced age negatively influences anticoagulant prescribing.

The main oral anticoagulants are warfarin and NOACs, which significantly reduce thromboembolic events and improve outcomes [22][23]. However, warfarin remains the only option for valvular AF [24]. Our survey revealed warfarin prescription rates of 37.8% among hospitalized patients in Chongqing, with combined dabigatran and rivaroxaban use at only 9.3%. Tertiary hospitals had modest NOAC prescription rates (12.1%), while secondary hospitals were even lower (4.7%), far below Japan' s rate of 66% [25]. Although warfarin is less effective and safe than NOACs, it remains superior to antiplatelet therapy [26]. The stroke and embolic risk from not receiving anticoagulation far exceeds the bleeding risk from anticoagulants, even in high bleeding-risk patients [27]. Studies demonstrate that antiplatelet agents like aspirin and clopidogrel are far less effective than warfarin for stroke prevention in AF and increase bleeding risk, particularly with dual antiplatelet therapy, even at low aspirin doses [28][29]. Consequently, guidelines do not recommend antiplatelet therapy for AF patients. Our study shows warfarin prescription rates of only 37.8% overall (41.4% in tertiary, 31.9% in secondary hospitals), yet antiplatelet use was notably high at 44.6% overall, with even higher rates in secondary hospitals. The highest antiplatelet use and lowest anticoagulation rates were observed in patients >75 years, indicating a practice of substituting antiplatelet therapy for anticoagulation in elderly AF patients in our region.

Our findings indicate that most AF-HF patients in Chongqing are at high thromboembolic risk, yet fewer than one-quarter are at high bleeding risk. The low anticoagulation rates may be attributed to several factors: (1) Warfarin requires regular INR monitoring with target 2-3, demanding good patient compliance and difficult INR control; (2) Concerns about potential bleeding complications from oral anticoagulants, especially in elderly patients; (3) Inadequate physician awareness about anticoagulation across different regions and hospital levels; (4) Heavy economic burden of NOACs under China' s current healthcare insurance policies [30]; (5) Physician preference for antiplatelet therapy over anticoagula-

tion in elderly patients; and (6) Potential underestimation of HFpEF as a risk factor in AF patients, leading to reduced anticoagulation [31].

Heart failure is the primary reason for hospitalization and a common adverse outcome in most AF patients, with HFpEF or HFmrEF being more common than HFrEF [32]. A cross-sectional survey by Wang et al. [33] showed that HFpEF accounted for approximately 43.0% of hospitalized HF patients in China, with considerable gaps between real-world treatment and guideline recommendations, particularly regarding non-pharmacological therapy. For HFpEF, no specific drugs have proven efficacy in improving long-term prognosis, leaving only symptomatic supportive treatment, despite similar morbidity and mortality to HFrEF [34]. In our study, the distribution of HF subtypes among AF-HF patients in Chongqing was 3.2% HFrEF, 20.6% HFmrEF, and 66.2% HFpEF, with most patients in NYHA class III-IV. As HF and AF prevalence continue to rise, AF-HF patients should receive optimized HF therapy according to guideline recommendations [35]. Chinese guidelines [36] recommend ACEI/ARB to inhibit the renin-angiotensin system, combined with beta-blockers and aldosterone antagonists in selected HFrEF patients to improve symptoms, quality of life, and reduce morbidity and mortality. Our survey showed overall medication use rates of 59.7% for ACEI/ARB, 61.6% for beta-blockers, and 17.6% for digoxin. No significant differences were observed between secondary and tertiary hospitals in ACEI/ARB and beta-blocker use. Regarding non-pharmacological therapy, ICD and CRT can reduce sudden death risk and improve left ventricular function in eligible patients, though AF is associated with significant non-response to CRT [37]. The CHART-2 study reported that only 2.9% of stage C and 15.8% of stage D HF patients in Asia received ICD or CRT [38], while our survey found ICD use at only 0.8%.

Catheter ablation is increasingly used in clinical practice for AF-HF patients, significantly improving AF symptoms without the toxicities of traditional antiarrhythmic drugs, making it an important therapeutic option. The 2016 AATAC trial demonstrated that catheter ablation was superior to conventional antiarrhythmic drugs in maintaining sinus rhythm and reducing all-cause mortality and rehospitalization in AF-HF patients [39]. However, our survey found radiofrequency ablation was performed in only 0.8% of patients, primarily in tertiary hospitals, likely due to limited technical expertise and high procedure costs.

This study has several limitations. Economic disparities across Chongqing' s districts, combined with limited funding and technical personnel, may have introduced sampling bias. Additionally, the study included only hospitalized patients, lacking data from outpatient and primary care settings, which may not represent the overall AF population in China. Due to resource constraints, we could not conduct follow-up or prognostic analysis; we hope future larger-scale studies will include follow-up of AF-HF patients. As a cross-sectional study, selection and information bias may affect generalizability.

In conclusion, heart failure increases thromboembolic risk in AF patients, mak-

ing anticoagulation particularly crucial for AF-HF patients. However, our study reveals suboptimal antithrombotic therapy rates and considerable gaps between HF management and guideline recommendations in Chongqing. Physicians at all hospital levels should enhance their understanding, implement individualized treatment based on age, increase adherence to guideline recommendations, and address misconceptions about antithrombotic therapy in AF-HF patients.

Author Contributions: HU Huachao designed and implemented the study, collected and analyzed data, and wrote the manuscript; CHEN Xianya, XIE Siyuan, and XIA Zhen conducted surveys, assessed patients, and collected sample data; XIAO Hua revised the final version and takes responsibility for the manuscript.

Conflict of Interest: None declared.

Table 1. Comparison of Baseline Data of Patients with AF Complicated by HF Across Different Age Groups

Characteristic	Total (n=4,011)	<65 years (n=691)	65-75 years (n=1,328)	>75 years (n=1,992)	Test Statistic	P-value
Male [n(%)]	1,732 (43.2)	332 (48.0)	616 (46.4)	784 (39.4)	24.095	<0.001
Comorbidities [n(%)]						
Coronary artery disease	2,610 (65.1)	218 (31.5)	825 (62.1)	1,567 (78.7)	508.676	<0.001
Hypertension	2,047 (51.0)	212 (30.7)	640 (48.2)	1,195 (60.0)	182.784	<0.001
Diabetes mellitus	700 (17.5)	107 (15.5)	241 (18.1)	352 (17.7)	-	-
Cardiomyopathy	805 (20.1)	76 (11.0)	232 (17.5)	497 (24.9)	70.613	<0.001
Liver dysfunction	211 (5.3)	87 (12.6)	95 (7.2)	29 (1.5)	141.901	<0.001
Chronic kidney disease	436 (13.9)	49 (7.1)	116 (8.7)	278 (14.0)	35.387	<0.001
Peripheral artery disease	107 (2.7)	29 (2.2)	22 (1.7)	77 (3.9)	22.302	<0.001
Anemia	317 (7.9)	34 (4.9)	49 (7.1)	213 (10.7)	42.383	<0.001

Characteristic	Total (n=4,011)	<65 years (n=691)	65-75 years (n=1,328)	>75 years (n=1,992)	Test Statistic	P-value
COPD [n(%)]	617 (15.7)	45 (6.5)	191 (14.4)	381 (19.1)	64.241	<0.001
Valvular AF [n(%)]	665 (16.6)	273 (39.5)	268 (20.2)	124 (6.2)	429.531	<0.001
AF Type [n(%)]						
Paroxysmal	750 (18.7)	125 (18.1)	229 (17.2)	396 (19.9)	-	-
Persistent	2,243 (55.9)	405 (58.6)	772 (58.1)	1,066 (53.5)	-	-
Long-standing persistent	1,018 (24.4)	161 (23.3)	327 (24.6)	530 (26.6)	-	-
NYHA Class II [n(%)]	952 (23.7)	175 (25.4)	356 (26.8)	421 (21.1)	-	-
NYHA Class III-IV [n(%)]	3,059 (76.3)	516 (74.6)	972 (73.2)	1,571 (78.8)	-	-
CHA_2DS_2-VASc score (mean±SD)	3.94$±1.49|2.289±1.09|3.59±0.18|4.75±1.19|1,234.844^a| < 0.001||HAS-BLEDscore(mean±SD)|1.72±0.95|0.72±0.81|1.86±0.83|1.98±0.83|632.185^a| < 0.001||LAD(mean±SD,mm)|44.12±9.21|42.42±7.90|44.73±9.40|47.95±10.97|97.334^a| < 0.001||LVIDd(mean±SD,mm)|48.45±10.06|46.48±9.59|49.83±9.91|51.52±10.45|82.112^a| < 0.001||LVEF(mean±SD,±11.94|51.85±12.92|52.6±12.50|56.11±$10.86					
HF Type [n(%)]						
HFrEF	532 (13.2)	140 (20.3)	221 (16.6)	171 (8.6)	404.542	<0.001
HFmrEF	823 (20.6)	156 (22.5)	297 (22.4)	369 (18.5)	-	-
HFpEF	2,656 (66.2)	395 (57.2)	810 (61.0)	1,452 (72.9)	-	-
Warfarin [n(%)]	1,516 (37.8)	386 (55.9)	563 (42.4)	567 (28.5)	181.65	<0.001
Dabigatran [n(%)]	182 (4.5)	22 (3.2)	61 (4.6)	99 (5.0)	-	-

Characteristic	Total (n=4,011)	<65 years (n=691)	65-75 years (n=1,328)	>75 years (n=1,992)	Test Statistic	P-value
Rivaroxaban [n(%)]	193 (4.8)	30 (4.3)	55 (4.1)	108 (5.4)	-	-
Aspirin [n(%)]	663 (16.5)	76 (11.0)	236 (17.8)	351 (17.6)	18.523	<0.001
Clopidogrel [n(%)]	874 (21.8)	73 (10.6)	249 (18.8)	552 (27.7)	99.273	<0.001
Other antiplatelet agents [n(%)]	20 (0.5)	2 (0.3)	7 (0.5)	11 (0.6)	-	-
Dual antiplatelet therapy	229 (5.7)	21 (3.0)	94 (7.1)	114 (5.7)	-	-
Rate control drugs [n(%)]	3,162 (78.8)	600 (86.8)	1,079 (81.3)	1,483 (74.4)	54.093	<0.001
Beta-blockers [n(%)]	2,471 (61.6)	476 (68.9)	846 (63.7)	1,149 (57.7)	30.931	<0.001
Digoxin [n(%)]	704 (17.6)	174 (25.2)	253 (19.1)	277 (14.0)	48.156	<0.001
ARB/ACEI [n(%)]	2,396 (59.7)	332 (48.1)	682 (51.4)	1,382 (69.4)	155.025	<0.001
Statins [n(%)]	2,022 (50.4)	241 (34.9)	764 (57.5)	1,017 (51.1)	93.955	<0.001
Cardioversion [n(%)]	159 (4.0)	40 (5.8)	51 (3.9)	68 (3.4)	-	-
Catheter ablation [n(%)]	33 (0.8)	11 (1.6)	12 (0.9)	10 (0.5)	-	-

Note: ACEI/ARB = angiotensin-converting enzyme inhibitor/angiotensin receptor blocker, LAD = left atrial diameter, LVIDd = left ventricular end-diastolic diameter, LVEF = left ventricular ejection fraction, HFrEF = heart failure with reduced ejection fraction, HFmrEF = heart failure with mid-range ejection fraction, HFpEF = heart failure with preserved ejection fraction. ^a indicates F-value; remaining test statistics are ^{2} values.

Table 2. Comparison of Clinical Characteristics Between Tertiary and Secondary Hospitals

Characteristic	Tertiary (n=2,492)	Secondary (n=1,519)	Test Statistic	P-value
Age (mean±SD, years)	73.66$±10.76|74.42±10.62|−2.210[a]| < 0.001||Male[n(±SD, mm)|44.17±9.27|44.03±9.11|0.465[a]|−||LVIDd(mean±SD, mm)|49.01±8.88|47.43±11.78|4.337[a]| < 0.001||LVEF(mean±SD,±12.35|54.71±$11.24		<0.001	
HF Type [n(%)]				
HFrEF	358 (14.4)	174 (11.5)	-	-
HFmrEF	528 (21.2)	295 (19.4)	-	-
HFpEF	1,606 (64.4)	1,050 (69.1)	-	-

Note: ACEI/ARB = angiotensin-converting enzyme inhibitor/angiotensin receptor blocker, ICD = implantable cardioverter-defibrillator, LAD = left atrial diameter, LVIDd = left ventricular end-diastolic diameter, LVEF = left ventricular ejection fraction, HFrEF = heart failure with reduced ejection fraction, HFmrEF = heart failure with mid-range ejection fraction, HFpEF = heart failure with preserved ejection fraction. ^a indicates t-value; remaining test statistics are ^{2} values.

Figure 1. Scatter Plot of Patient Age vs. CHA_2DS_2-VASc Score
[Figure 1: see original paper]

Figure 2. Antithrombotic Status Across Age Groups
[Figure 2: see original paper]

Figure 3. Comparison of CHA_2DS_2-VASc Scores Between Secondary and Tertiary Hospitals in Chongqing
[Figure 3: see original paper]

Figure 4. Comparison of HAS-BLED Scores Between Secondary and Tertiary Hospitals in Chongqing
[Figure 4: see original paper]

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