CHEST™

Prevalence, Incidence, and Lifetime Risk of Atrial Fibrillation in China

New Insights Into the Global Burden of Atrial Fibrillation

Yutao Guo, MD, PhD; Yingchun Tian, MD; Hao Wang, MD; Quanjin Si, MD, PhD; Yutang Wang, MD, PhD; and Gregory Y. H. Lip, MD

BACKGROUND: Much of the epidemiology of atrial fibrillation (AF) is based on data from Western populations. Despite the huge population of Asia, data on the clinical epidemiology of AF in Asian countries are limited. The current study aimed to investigate the prevalence and incidence of newly diagnosed (ie, incident) AF, as well as lifetime risk, in China and to determine the clinical risk factors contributing to its development.

METHODS: Using a medical insurance database involving > 10 million individuals for the years 2001 to 2012 in the southwest of China, trends in incident AF were calculated using Kaplan-Meier analysis and Cox regression. The usefulness of the $CHADS_2$ (congestive heart failure, hypertension, age, diabetes, stroke [doubled]) and CHA_2DS_2-VASc (congestive heart failure, hypertension, age ≥ 75 [doubled], diabetes, stroke [doubled], vascular disease, age 65-74, and sex category [female]) scores was tested in predicting the occurrence of incident AF.

RESULTS: A total of 471,446 individuals (aged ≥ 20 years) were studied, with 1,924,975 person-years of experience. We identified 921 patients with incident AF (62% male; mean age, 62 years). The prevalence of incident AF in subjects aged ≥ 20 years was 0.2 per 100 people, with an incidence of AF of 0.05 per 100 person-years overall. Over an 11-year period, the prevalence of AF increased 20-fold, whereas AF-related stroke increased 13-fold. The lifetime risk of AF was approximately one in five among Chinese adults, and it increased with advancing age. The CHA_2DS_2-VASc score was superior to the $CHADS_2$ score in predicting the risk of incident AF in our Chinese population (DeLong test, $Z = 6.621$, $P < .001$).

CONCLUSIONS: The AF burden, as well as the risk of AF-related stroke, has increased significantly over the past 11 years in the southwest of China. The public health burden of AF and its complications are greatest in the very elderly, with major implications for health-care systems given the global burden of this common arrhythmia. CHEST 2015; 147(1):109-119

Manuscript received February 8, 2014; revision accepted May 16, 2014; originally published Online First June 12, 2014.

ABBREVIATIONS: AF = atrial fibrillation; CAD = coronary artery disease; $CHADS_2$ = congestive heart failure, hypertension, age, diabetes, stroke (doubled); CHA_2DS_2-VASc = congestive heart failure, hypertension, age ≥ 75 (doubled), diabetes, stroke (doubled), vascular disease, age 65-74, and sex category (female); HF = heart failure; RHD = rheumatic heart disease; ROC = receiver operating characteristic

AFFILIATIONS: From the Department of Geriatric Cardiology (Drs Guo, H. Wang, Si, and Y. Wang), Chinese PLA General Hospital, Beijing, China; the Department of Gerontology (Dr Tian), Second People's Hospital, Yunnan Province, China; and University of Birmingham Centre for Cardiovascular Sciences (Dr Lip), City Hospital, Birmingham, England.

Drs Y Wang and Lip are the joint senior authors of this manuscript.

FUNDING/SUPPORT: The authors have reported to *CHEST* that no funding was received for this study.

CORRESPONDENCE TO: Gregory Y. H. Lip, MD, University of Birmingham Centre for Cardiovascular Sciences, City Hospital, Birmingham, B18 7QH, England; e-mail: g.y.h.lip@bham.ac.uk

© 2015 AMERICAN COLLEGE OF CHEST PHYSICIANS. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details.

DOI: 10.1378/chest.14-0321

Atrial fibrillation (AF) is the most common cardiac rhythm disorder, and its prevalence will at least double in the next 50 years because of an aging population.[1] Most of the clinical epidemiology of AF has been based on predominantly white populations in North America or Europe.[2] The burden of AF and its related stroke has been well documented, and the management of AF has evolved greatly in North America or Europe. Nonetheless, data on AF in the nonwhite population are scare, especially data on incidence and the antecedent risk factors for arrhythmia development. Also, time trends in the clinical epidemiology of AF among the Chinese are uncertain, in contrast to extensive data in the white population.[3]

In a cross-sectional survey of 19,363 Chinese, 199 AF cases were reported, suggesting a low prevalence.[4] Even if the prevalence of AF was truly low, the number of patients with AF at the risk of stroke could be very high, given the huge population of China. Furthermore, there is a great unmet need in AF management, particularly with suboptimal thromboprophylaxis in the Chinese

FOR EDITORIAL COMMENT SEE PAGE 9

population leading to missed opportunities in stroke prevention.[5]

In this study, we have used, we believe for the first time, a large medical insurance database to investigate the trends in age-adjusted AF prevalence, incidence, and adjusted age-specific lifetime risk of AF during an 11-year period (2001-2012) in the southwest of China. Second, we evaluated the risk factors contributing to AF in our population. With 1,924,975 person-years of experience, this represents the largest dataset to our knowledge investigating the clinical epidemiology of AF in Asian subjects, specifically the Chinese.

Materials and Methods

Database Description

A medical insurance database in Yunnan Province, China, with data from January 1, 2001, through December 30, 2012, was used. This database includes > 10 million individuals who enrolled in a large, governmental medical insurance plan. This medical insurance scheme covers urban residents in Yunnan Province, located in the far southwest of China, spanning approximately 394,000 km^2 and with a population of 46.3 million (2011 population statistics), representing 3% of the total Chinese population. All participants had a permanent and personal registration number through which information on medical history, drugs, and mortality data recorded in their lifetime could be collected. The recorded medical information was obtained from local 2A-grade hospitals and 3A-grade hospitals, which provide the highest quality of medical services and corresponding diagnoses.

Random sampling was performed among the enrolled individuals biennially, based on the periods of 2001-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, and 2011-2012. Thus, a total of 1,228,639 people were selected. After excluding people with incomplete data (n = 2,611 cases) and readmission (n = 754,582), 471,446 cases were entered into the final analysis (Fig 1). For individuals with rehospitalization, only the first admission was indexed. All subjects were ≥ 20 years old. The medical ethics committee of PLA General Hospital approved the study (Approval No. 13BJZ40).

Evaluation of AF and Comorbidities

All individuals enrolled had a diagnosis of AF (*International Classification of Diseases, Ninth Revision*/*International Classification of Diseases, 10th Revision* codes 427.31/I48). Information on comorbidities and events were also based on these codes. AF was defined based on an ECG or Holter recording. The inclusion criteria for an AF case were limited

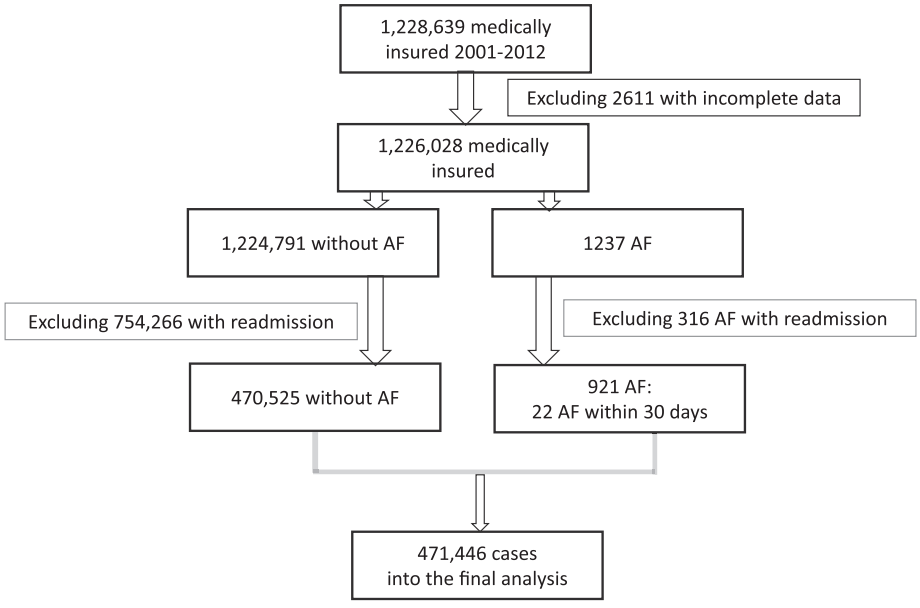

Figure 1 – *Flowchart of patient data. AF = atrial fibrillation.*

Download English Version:

https://daneshyari.com/en/article/5953461

Download Persian Version:

https://daneshyari.com/article/5953461

Daneshyari.com