

Clinical Research

Temporal Patterns and Predictors of Rate vs Rhythm Control in Patients Attending a Multidisciplinary Atrial Fibrillation Clinic

Jorge A. Wong, MD, MPH, F. Russell Quinn, MB BCh, Anne M. Gillis, MD, Laurie Burland, RN, Guanmin Chen, PhD, D. George Wyse, MD, and Stephen B. Wilton, MD, MSc

Cardiac Arrhythmia Service, Department of Cardiac Sciences, Libin Cardiovascular Institute of Alberta, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada

ABSTRACT

Background: Contemporary trends in the selection of and persistence with rate vs rhythm control for atrial fibrillation (AF) are not well studied, particularly in the context of multidisciplinary AF clinics.

Methods: The initial arrhythmia management strategy in 1031 consecutive patients attending a multidisciplinary AF clinic from 2005–2012 was analyzed.

Results: The 397 (38.5%) patients initially treated with rhythm control were younger (57.4 ± 14 years vs 65.6 ± 13 years; $P < 0.0001$) and more likely to be men (64.5% vs 56.9%; $P = 0.019$). They also had fewer comorbidities, lower CHADS₂ (Congestive Heart Failure, Hypertension, Age, Diabetes, Stroke/Transient Ischemic Attack) scores, and greater symptom burden. The proportion treated with rhythm control

RÉSUMÉ

Introduction : Les tendances contemporaines en matière de choix et de persévérance de la maîtrise de la fréquence vs la maîtrise du rythme de la fibrillation auriculaire (FA) ont fait l'objet de peu d'études, particulièrement dans le contexte des cliniques multidisciplinaires de FA.

Méthodes : Nous avons analysé la stratégie initiale de prise en charge de l'arythmie chez 1031 patients consécutifs participant à une clinique multidisciplinaire de FA de 2005 à 2012.

Résultats : Les 397 (38,5 %) patients initialement traités par la maîtrise du rythme étaient plus jeunes ($57,4 \pm 14$ ans vs $65,6 \pm 13$ ans; $P < 0,0001$) et plus susceptibles d'être des hommes (64,5 % vs 56,9 %; $P = 0,019$). Ils avaient également moins de comorbidités, des

Atrial fibrillation (AF) is the most common cardiac arrhythmia and represents a growing public health problem.^{1,2} Management of AF symptoms centres on 2 strategies: ventricular rate control or restoration and maintenance of normal sinus rhythm. Randomized trials between 2000 and 2008 failed to show a difference in mortality or other major morbidity between these 2 approaches.^{3–7} As a result, there was a shift toward increased use of rate control starting in the early 2000s.^{8,9} However, options for rhythm control have evolved, and the impact of increased availability of AF catheter ablation and newer antiarrhythmic drugs (AADs), such as dronedarone, on practice patterns remain unknown. Indeed, it is reasonable to hypothesize that a shift back toward a preference for rhythm control has occurred. Contemporary data about the use of rate and rhythm

control from well-characterized patient populations with AF would address this hypothesis.

Recently, multidisciplinary ambulatory clinics for specialized AF management have been implemented in many centres. These clinics have been linked to improved morbidity, mortality, quality of life, and cost-effectiveness.^{10–14} Data from these clinics provide a unique opportunity to assess treatment patterns over time in patients with AF managed within this model, in which patients are provided with balanced information about, and are empowered to participate in, selecting their arrhythmia management strategies.¹⁵ In this study, we examined the temporal evolution of practice patterns in the use of rate vs rhythm control in a contemporary cohort of patients managed in a multidisciplinary AF clinic to determine associations between clinical covariates and choice of initial arrhythmia management strategy.

Methods

Setting and patients

The Alberta Health Services Calgary Zone AF clinic is a major referral point for patients requiring specialty AF

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Corresponding author: Dr Jorge A. Wong, 900 Commonwealth Ave, 3rd Flr, Boston, Massachusetts 02120, USA. Tel.: +1-617-732-5500 ×27679; fax: +1-617-277-0198.

E-mail: jorge.wong@mail.harvard.edu

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declined from 46.9% in 2005-2006 to 28.4% in 2012 (P for trend < 0.0001). Compared with those initially selecting rate control, patients treated with rhythm control required more frequent clinic encounters (7 [interquartile range {IQR}, 3-12] vs 3 [IQR, 2-7]; $P < 0.001$) and longer follow-up (266 days [IQR, 84-548 days] vs 99 days [IQR, 0-313 days]; $P < 0.001$). Younger age, absence of diabetes and sleep apnea, earlier treatment year, higher symptom burden, and rural residence were independently associated with rhythm control. Persistence with the initial treatment strategy was reduced in the rhythm-control group ($P = 0.003$).

Conclusions: Use of rhythm control as the initial arrhythmia management strategy for AF in a specialty AF clinic is declining. Rhythm control requires more intensive follow-up and was more likely to lead to a change in arrhythmia management strategy.

management in the Calgary area (catchment 1.5 million).¹⁵ The clinic is staffed by full-time nurse clinicians, and a cardiac electrophysiologist attends all in-person clinic visits. Initial triage and telephone contact eliminates in-person visits for patients who are adequately managed by their primary care physician. Patient education is a core function and value of the clinic and is offered to all patients. Clinic staff may suggest a preferred arrhythmia management strategy, but the main goal is to empower the patient to actively participate in making an informed choice. The clinic database includes prospective collection of clinical variables and a longitudinal record of the pharmacologic and nonpharmacologic AF therapies prescribed.

We screened all clinic referrals from its inception in 2005 until November 15, 2012 ($N = 3567$). The study period saw expansions in clinic volume, the number of consulting electrophysiologists, and the availability of AF catheter ablation. Prespecified inclusion criteria were all first-time referrals. Referrals from cardiologists were excluded because these patients had typically failed 1 or more trials of therapy. Patients who did not attend an in-person physician visit were excluded from the analysis because their AF management details could not be ascertained, and they did not consent to follow-up data collection. Finally, patients who had no documentation of any form of therapy were also excluded. All included participants provided written informed consent for data collection, and this study was approved by the University of Calgary Health Research Ethics Board.

Study definitions

Patients were assigned to the rhythm-control group as the initial treatment strategy if they were prescribed a membrane-active AAD (Vaughan-Williams class I, class III, sotalol, amiodarone, or dronedarone), had electrical cardioversion, or were referred for a left atrial catheter ablation

scores CHADS₂ (Congestive Heart Failure, Hypertension, Age, Diabetes, Stroke/Transient Ischemic Attack, soit l'insuffisance cardiaque congestive, l'hypertension, l'âge, le diabète, l'accident vasculaire cérébral/l'ischémie cérébrale transitoire) plus faibles et un plus grand fardeau de symptômes. La proportion de patients traités par la maîtrise du rythme montrait une diminution allant de 46,9 % en 2005-2006 à 28,4 % en 2012 (P pour la tendance $< 0,0001$). Comparativement à ceux qui choisissaient initialement la maîtrise de la fréquence, les patients traités par la maîtrise du rythme nécessitaient des rendez-vous cliniques plus fréquents (7 [intervalle interquartile {IIQ}, 3-12] vs 3 [IIQ, 2-7]; $P < 0,001$) et un suivi plus long (266 jours [IIQ, 84-548 jours] vs 99 jours [IIQ, 0-313 jours]; $P < 0,001$). L'âge moins avancé, l'absence de diabète et d'apnée du sommeil, les années antérieures de traitement, le fardeau de symptômes plus élevé et la résidence en zone rurale étaient indépendamment associés à la maîtrise du rythme. La persévérance à la stratégie initiale de traitement était moindre dans le groupe de la maîtrise du rythme ($P = 0,003$).

Conclusions : L'utilisation de la maîtrise du rythme comme stratégie de prise en charge initiale de l'arythmie lors de FA dans une clinique spécialisée de FA diminue. La maîtrise du rythme requiert un suivi plus intensif et était plus susceptible d'entraîner un changement de stratégie de prise en charge de l'arythmie.

procedure between 90 days before and 90 days after their first clinic visit. The remaining patients were assigned to the rate-control group. AF pattern was assigned according to the qualifying AF episode (most recent AF resulting in clinic referral) according to the 2006 American College of Cardiology/American Heart Association guidelines.¹⁶ Newly discovered AF was defined as patients presenting with their first electrocardiographically documented episode. Recurrent AF was defined as patients who presented with 2 or more electrocardiographically documented episodes and was subdivided into paroxysmal and persistent according to the qualifying episode. Paroxysmal AF was defined as recurrent episodes self-terminating within 7 days. Persistent AF was defined as recurrent episodes lasting beyond 7 days or requiring cardioversion. The presence of comorbidities was determined from a review of available medical records at referral and patient self-reporting. CHADS₂ (Congestive Heart Failure, Hypertension, Age, Diabetes, Stroke/Transient Ischemic Attack) scores were determined as reported previously.¹⁷ The Canadian Cardiovascular Society Severity of AF (CCS-SAF)^{18,19} scale was used to assess AF-related symptom severity, with scores ranging from 0 (asymptomatic) to 4 (severe symptoms). The most recent CCS-SAF score before the date of arrhythmia management strategy selection was used.

AF clinic care

All included patients attended an in-person physician visit at which a detailed AF-related history was taken, a physical examination and medication review was performed, pertinent investigations were organized and reviewed, and a plan of care was developed. Follow-up care included nurse-clinician telephone visits or in-person visits (or both) as required. Patients were discharged from clinic once a stable well-tolerated AF management plan was in place. For this

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