



Original article

Comparative effectiveness of antiarrhythmic drugs for rhythm control of atrial fibrillation



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ARTICLE INFO

Article history:

Received 17 April 2015

Received in revised form 9 June 2015

Accepted 1 July 2015

Available online 29 July 2015

Keywords:

Antiarrhythmic drugs

Atrial fibrillation

Comparative effectiveness

ABSTRACT

Introduction: Although there are many different antiarrhythmic drugs (AADs) approved for rhythm management of atrial fibrillation (AF), little comparative effectiveness data exist to guide drug selection. **Methods:** We followed 5952 consecutive AF patients who were prescribed amiodarone ($N = 2266$), dronedarone ($N = 488$), dofetilide ($N = 539$), sotalol ($N = 1718$), or class 1C agents ($N = 941$) to the primary end point of AF recurrence.

Results: Median follow-up time was 18.2 months (range 0.1–101.6 months). Patients who were prescribed amiodarone had the highest, while patients on class 1C agents had the lowest baseline CHA₂DS₂-VASc score, Charlson comorbidity index, and burden of comorbid illnesses including coronary artery disease, congestive heart failure, diabetes mellitus, hyperlipidemia, chronic obstructive lung disease, chronic kidney disease, or cancer ($p < 0.05$ for all comparisons). After adjusting for baseline characteristics, using dronedarone as benchmark, amiodarone [hazard ratio (HR) 0.58, $p < 0.001$], class 1C agents (HR 0.70, $p < 0.001$), and sotalol (HR 0.79, $p = 0.008$), but not dofetilide (HR 0.87, $p = 0.178$) were associated with less AF recurrence. In addition, compared to dronedarone, amiodarone and class 1C agents were associated with lower rates of admissions for AF (HR 0.55, $p < 0.001$ for amiodarone; HR 0.71, $p = 0.021$ for class 1C agents) and all-cause mortality was lowest in patients treated with class 1C agents (HR 0.42, $p = 0.018$). The risk of stroke was similar among all groups.

Conclusion: Compared with dronedarone, amiodarone, class 1C agents, and sotalol are more effective for rhythm control, while dofetilide had similar efficacy. These findings have important implications for clinical practice.

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Introduction

Atrial fibrillation (AF) is the most common arrhythmic disorder in an aging population, leading to significant morbidity and mortality due to its associated thromboembolic complications and decompensation of cardiac function [1–6]. Based on estimates from the American Heart Association, there are more than 467,000 hospitalizations and 99,000 deaths due to AF in the USA each year [5]. Rhythm control is a desirable strategy for many patients with

AF [7–10], and is often achieved using antiarrhythmic drugs (AAD) that alter the function of membrane channels in cardiac myocytes [11,12,7,13,14]. Published guidelines on rhythm management of AF allow the use of many AADs in most patients, but there is paucity of data on the relative efficacy of the various agents in maintaining sinus rhythm [14]. As a result, clinicians prescribe AADs for AF management on a trial and error basis or according to their personal preferences. Moreover, information on the efficacy of AADs in maintaining sinus rhythm is largely based on the results of clinical trial data, which may not reflect “real world” clinical practice [11,12,7].

This study was therefore designed to investigate the relative efficacy of AADs in preventing AF recurrence and their impact on other clinical outcomes, including cardiovascular and AF-related hospitalizations, stroke, and all-cause mortality.

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