

RATE VS RHYTHM ? AGAIN

OCTOBER 2, 2021
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The image features a close-up, slightly angled view of a brick wall. The bricks are a mix of dark brown and reddish-brown tones, with some showing signs of wear and discoloration. The mortar joints are a light, greyish-tan color. At the bottom of the image, there is a solid, vibrant red horizontal bar that spans the entire width of the frame. The overall composition is simple and textured.

DISCLOSURES

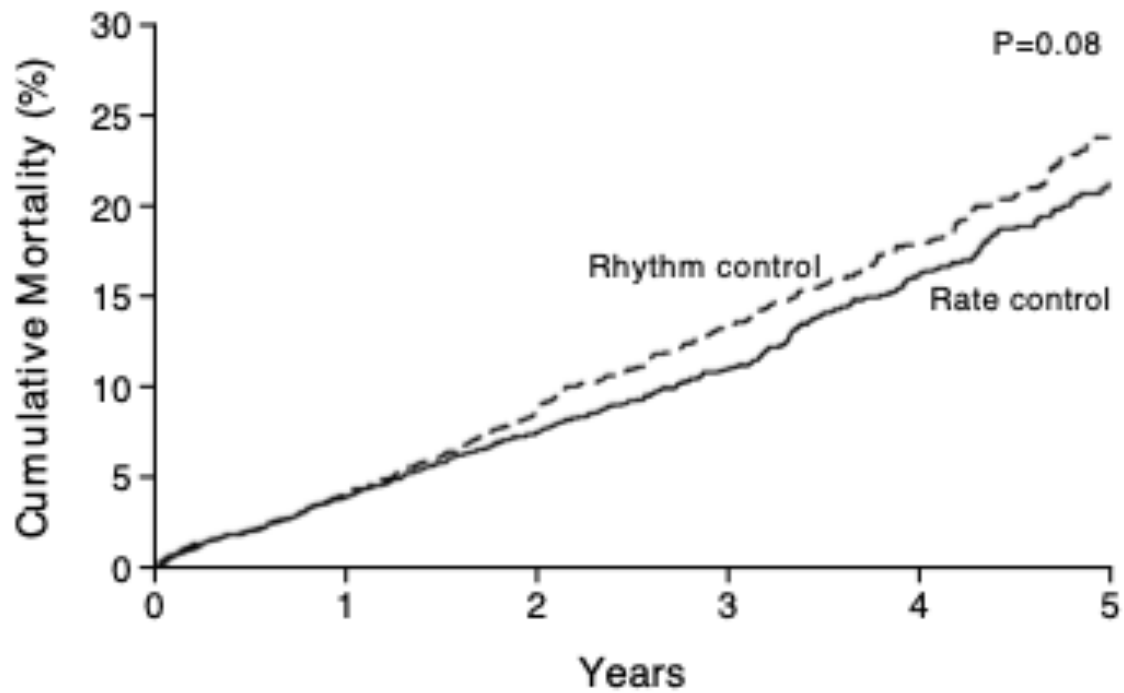
NONE

LEARNING OBJECTIVES

- **UNDERSTAND HOW RECENT EVIDENCE MODIFIED OUR UNDERSTANDING OF RATE VS RHYTHM CONTROL**
- **REVIEW MEDICATIONS USED FOR RATE CONTROL**
- **REVIEW MEDICATIONS FOR RHYTHM CONTROL**

AFFIRM TRIAL (NEJM 2002)

- **PATIENTS 65 YEARS AND OLDER WITH ATRIAL FIBRILLATION WERE RANDOMIZED TO RATE VS RHYTHM CONTROL**
- **RHYTHM CONTROL: ANTIARRHYTHMIC DRUGS (AMIODARONE, DISOPYRAMIDE, FLECANIDE, MORICIZINE, PROCAINAMIDE, PROPAFENONE, QUINIDINE, SOTALOL OR COMBINATION)**
- **RATE CONTROL: BETA BLOCKERS, CALCIUM CHANNEL BLOCKERS OR DIGOXIN**

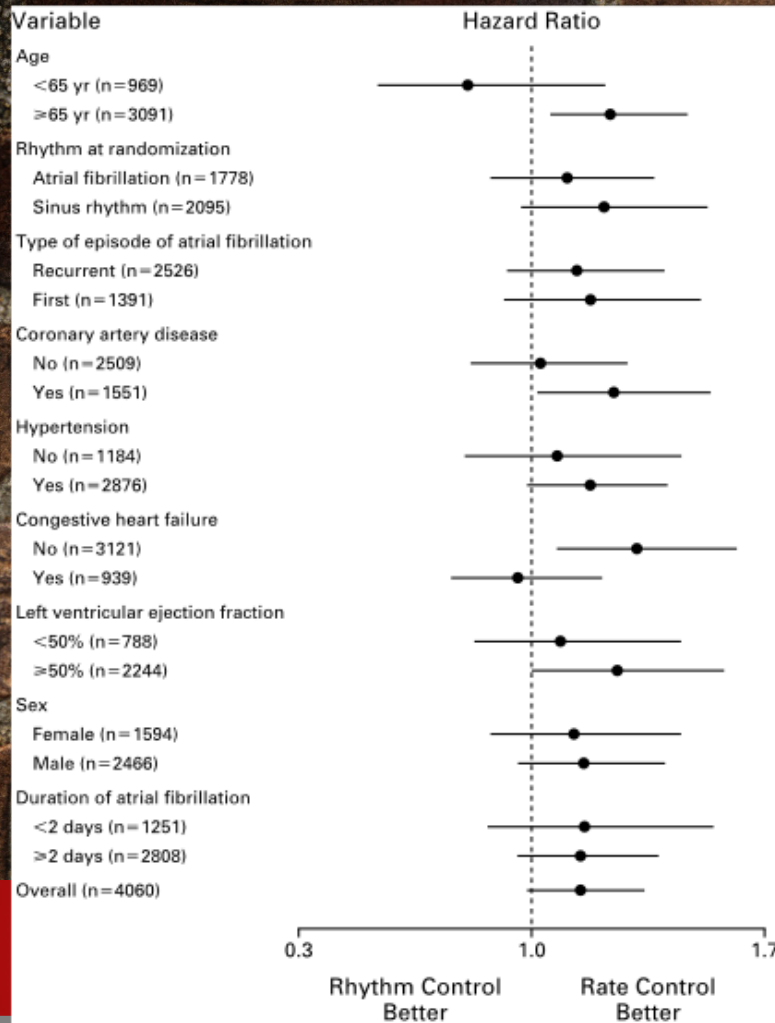


NO. OF DEATHS	number (percent)					
	0	1	2	3	4	5
Rhythm control	0	80 (4)	175 (9)	257 (13)	314 (18)	352 (24)
Rate control	0	78 (4)	148 (7)	210 (11)	275 (16)	306 (21)

Figure 1. Cumulative Mortality from Any Cause in the Rhythm-Control Group and the Rate-Control Group.

Affirm Trial 2002, NEJM

RATE VERSUS RHYTHM CONTROL FOR ATRIAL FIBRILLATION

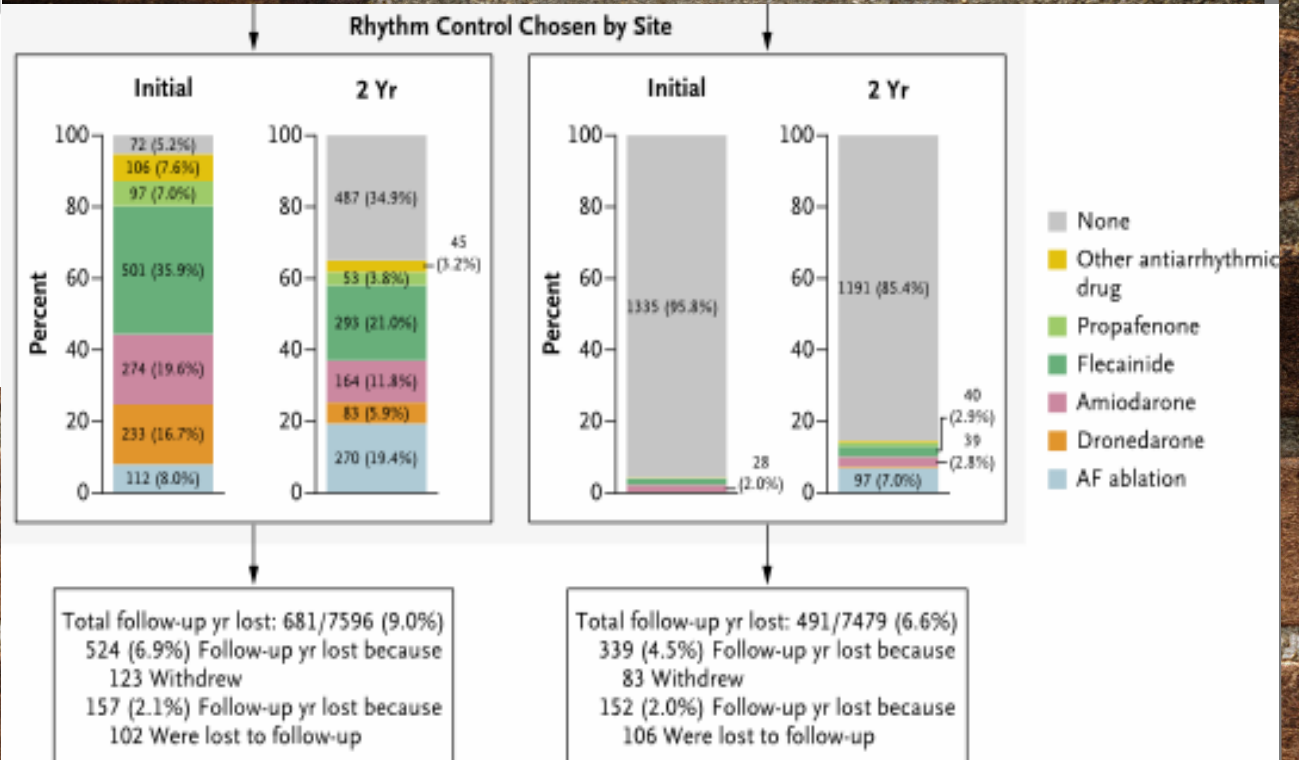
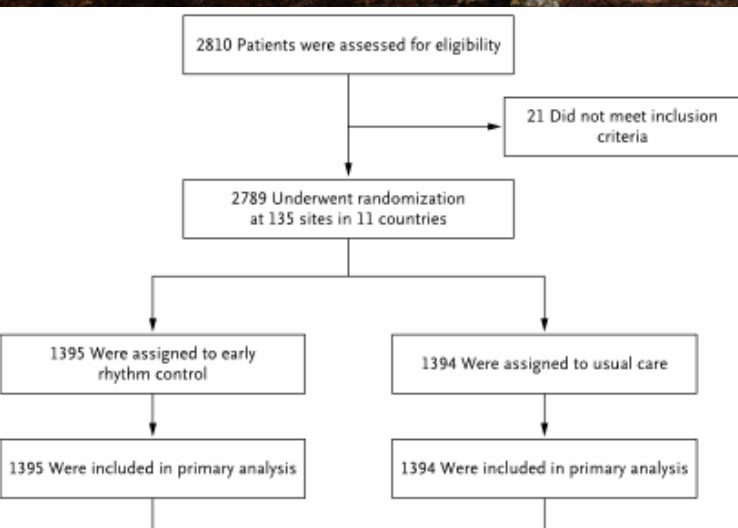


Affirm Trial 2002, NEJM

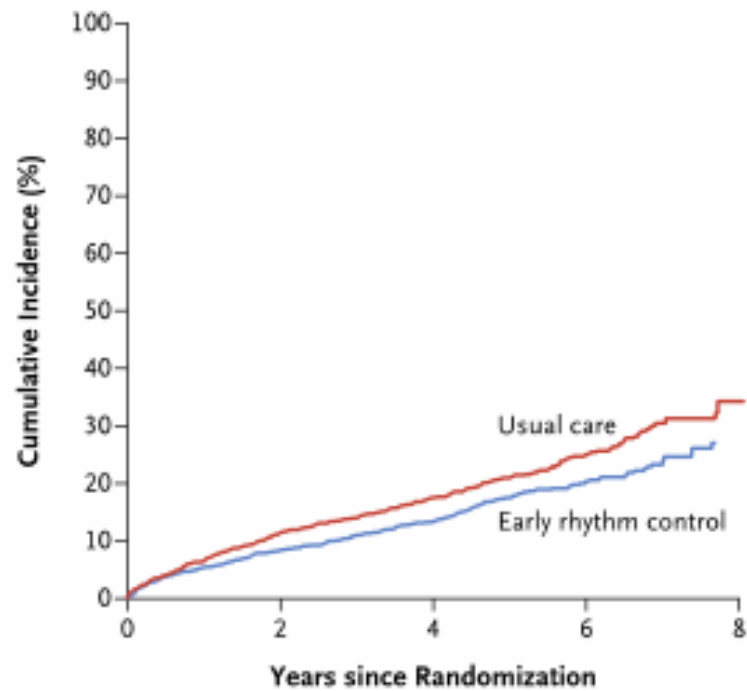
EARLY RHYTHM-CONTROL THERAPY IN PATIENTS WITH ATRIAL FIBRILLATION

- **ADULTS WHO HAD EARLY ATRIAL FIBRILLATION (DEFINED AS ATRIAL FIBRILLATION DIAGNOSED <12 MONTHS BEFORE ENROLLMENT)**
- **OLDER THAN 75 YEARS OF AGE, OR PRIOR TIA OR STROKE OR TWO OF THE FOLLOWING CRITERIA: AGE GREATER THAN 65, FEMALE SEX, SEVERE CAD, CKD**
- **PATIENTS ASSIGNED 1:1 TO RECEIVE EARLY RHYTHM CONTROL OR USUAL CARE**
- **EARLY RHYTHM CONTROL REQUIRED ANTIARRHYTHMIC DRUGS OR ABLATION AS WELL AS CARADIOVERSION**
- **PRIMARY OUTCOME: DEATH FROM CV CAUSE, STROKE OR HOSPITALIZATION FOR CHF OR ACS**

Kirchhof et al. NEJM, 2020



Kirchhof et al. NEJM, 2020



No. at Risk

Usual care	1394	1169	888	405	34
Early rhythm control	1395	1193	913	404	26

Figure 2. Aalen–Johansen Cumulative-Incidence Curves for the First Primary Outcome.

The first primary outcome was a composite of death from cardiovascular causes, stroke, or hospitalization with worsening of heart failure or acute coronary syndrome.

Kirchhof et al. NEJM, 2020

Early Rhythm Control
(N = 1395)

Usual Care
(N = 1394)

number (percent)

Primary composite safety outcome

231 (16.6)

223 (16.0)

40 (2.9)

57 (4.1)

Death

138 (9.9)

164 (11.8)

Adverse events of special interest related to rhythm-control therapy

68 (4.9)

19 (1.4)

- **STROKE: NNT = 67**
- **DEATH: NNT = 53**

Kirchhof et al. NEJM, 2020

Paroxysmal AF

Persistent AF

Permanent AF

AF Substrate

AF-induced substrate

(e.g. electrical & structural remodeling)

Modifiable Substrate

(e.g. hypertension, obesity, sleep apnea)

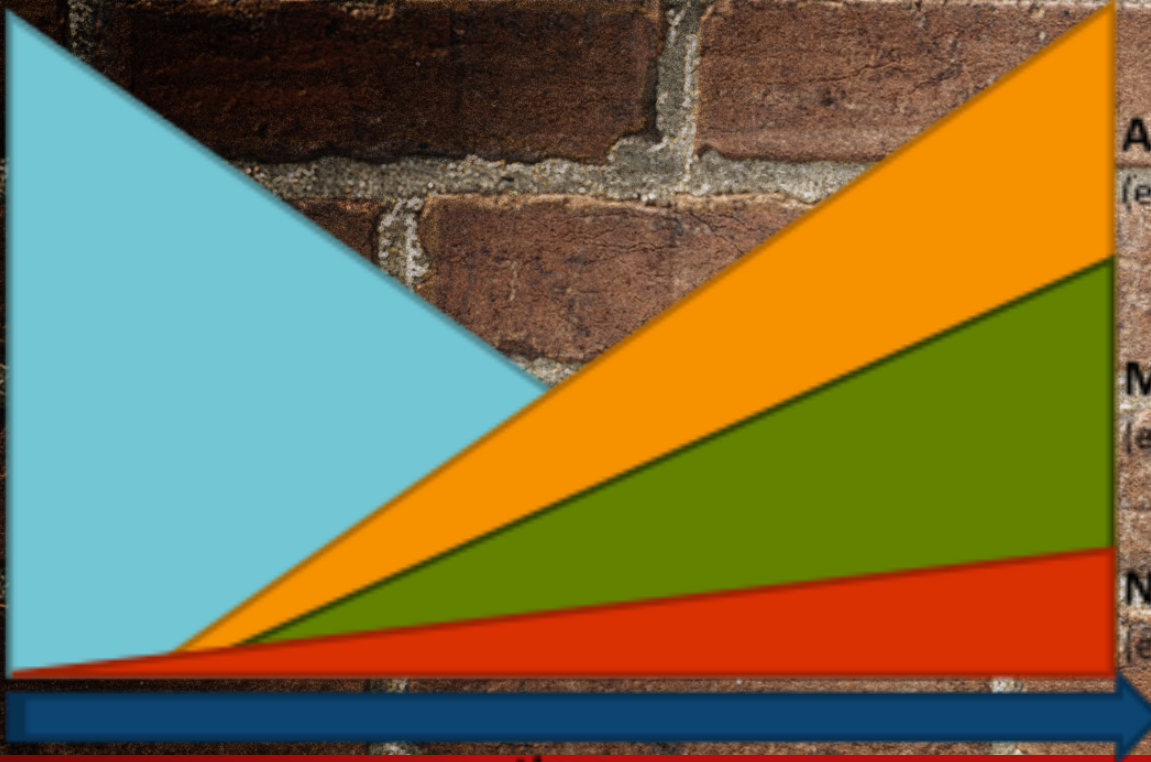
Non-modifiable Substrate

(e.g. Age, Sex, Genetics)

time

Andrade, et al, 2020 CCS guidelines

Relative importance



Approach to Rate and Rhythm Management of AF

Paroxysmal AF

Persistent AF

Initiate Rate-control
Consider long-term treatment

Low recurrence burden

High recurrence burden

Rhythm control preferred with:

- Recently diagnosed AF (within 1 year)
- Highly symptomatic or significant QOL impairment
- Multiple recurrences
- Difficulty to achieve rate control
- Arrhythmia-Induced cardiomyopathy

Optimise Rate control¹

Symptoms persist

Symptoms resolve

Cardioversion

Cardioversion

Observation

Pill-in-pocket AAD

Maintenance AAD therapy²

Catheter ablation

Symptoms improve with sinus rhythm restoration

Symptoms don't improve despite sinus rhythm

Continue Long-term Rate control¹

¹See Figure 18 for long-term rate control

²See Figure 19 for long-term rhythm control

Long-Term Rate Control¹

Inadequate symptom or heart rate control (resting heart rate > 100 bpm)

LVEF ≤ 40%²

LVEF > 40%

Beta-Blocker³

Beta-Blocker

ND-CCB⁴

Inadequate symptom or heart rate control (resting heart rate > 100 bpm)

add digoxin⁵

add ND-CCB⁴
or digoxin⁵

add beta-blocker
or digoxin⁵

Inadequate symptom or heart rate control (resting heart rate > 100 bpm)

Consider rhythm control vs. pacemaker implantation and AVJ Ablation⁶

Andrade, et al, 2020 CCS guidelines

Long-Term Rhythm Control¹

Heart Failure

CAD

No heart failure
and no CAD

LVEF \leq 40%

LVEF $>$ 40%

Amiodarone²

Amiodarone²
Sotalol³

Amiodarone²
Dronedarone⁴
Sotalol³

Amiodarone²
Dronedarone⁴
Flecainide⁵
Propafenone⁵
Sotalol³

first-line
catheter
ablation
in select
patients

Catheter Ablation

Andrade, et al, 2020 CCS guidelines

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Internal Medicine

List of physicians and areas of practice
Cranbrook (Sept. 2021)

01 Endocrine

- A. Adrenal and thyroid issues
- B. Electrolyte issues (Calcium, etc)
- C. Diabetes Management

Who: All physicians

02 Respiratory

- A. COPD/asthma clinic

Who: Dr.s Wik, Vaid

- B. Chronic Cough
- C. Dyspnea NYD
- D. Pleural effusions

03 Hematology

- A. Disorders in WBCs, RBCs, and platelets
- B. Pancytopenia
- C. Thrombosis

Who: All physicians

05 Nephrology

- A. Acid/Base disorders
- B. Proteinuria
- D. Acute or Chronic Kidney Disease

Who: All physicians

04 Cardiology

- A. Arrhythmias
- B. Valvular abnormalities
- C. Cardioversions
- D. Device clinic (working on proposal)

Who: All physicians

06 Maternal-Fetal medicine

Who: Dr.s Wik, Hodgson

A close-up photograph of a brick wall with reddish-brown bricks and grey mortar. A solid red horizontal bar is positioned at the bottom of the image. The text 'QUESTIONS????????' is centered in the middle of the image in a bold, red, sans-serif font.

QUESTIONS????????