

# The Effectiveness of Drug Therapy on Achieving Rate Control in Hospitalized Patients: A Retrospective Chart Review

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## BACKGROUND

- Atrial fibrillation (AF) is the most common arrhythmia seen in clinical practice<sup>1</sup> and it can have serious consequences if left untreated. These include stroke, myocardial infarction, and mortality.<sup>2</sup>
- Rate control has been proven to reduce morbidity and improve patients' quality of life and cardiac function.<sup>3-5</sup>
- There are no known existing studies that have evaluated how well patients with atrial fibrillation are achieving rate control in the hospital setting.
- Previous data regarding the safety and efficacy of rate control medications have been inconclusive.<sup>3</sup>

## OBJECTIVES

- To determine if a sample of hospitalized patients with atrial fibrillation are achieving rate control
- To evaluate the efficacy of their rate control medications

## METHODS

### Study Design

- Retrospective chart review

### Inclusion Criteria

- Aged 18-89 years
- Active diagnosis or history of AF or atrial flutter

### Data Sources

- 50 patient charts from SSM Health St. Mary's Hospital in St. Louis, MO

## METHODS

### Data Collection and Analysis

- Heart rates (HRs) and medication data were obtained from the patients' charts
- Average HRs for each patient were calculated using Microsoft Excel
- Patients were counted as achieving rate control if their average resting HR was less than 110 beats per minute (< 80 beats per minute if they required strict rate control)
- Medication doses were determined to be "at maximally tolerable dose" or "not at maximally tolerable dose"
- Rate control medications were assessed for effectiveness by calculating the percentage of patients on each medication who achieved rate control

## RESULTS

- Most patients (82%) were achieving rate control
- Most patients (56%) who did not achieve rate control weren't receiving the maximally tolerable dose of their rate control medication(s)
- The number of patients requiring strict vs. lenient rate control is uncertain. However, this information could be inferred for 26 out of the 50 patients based on their average HRs. 19 of these 26 patients were in the lenient rate control group, while the remaining 7 were in the strict rate control group.

Figure 1: Percentage of Patients Achieving Rate Control

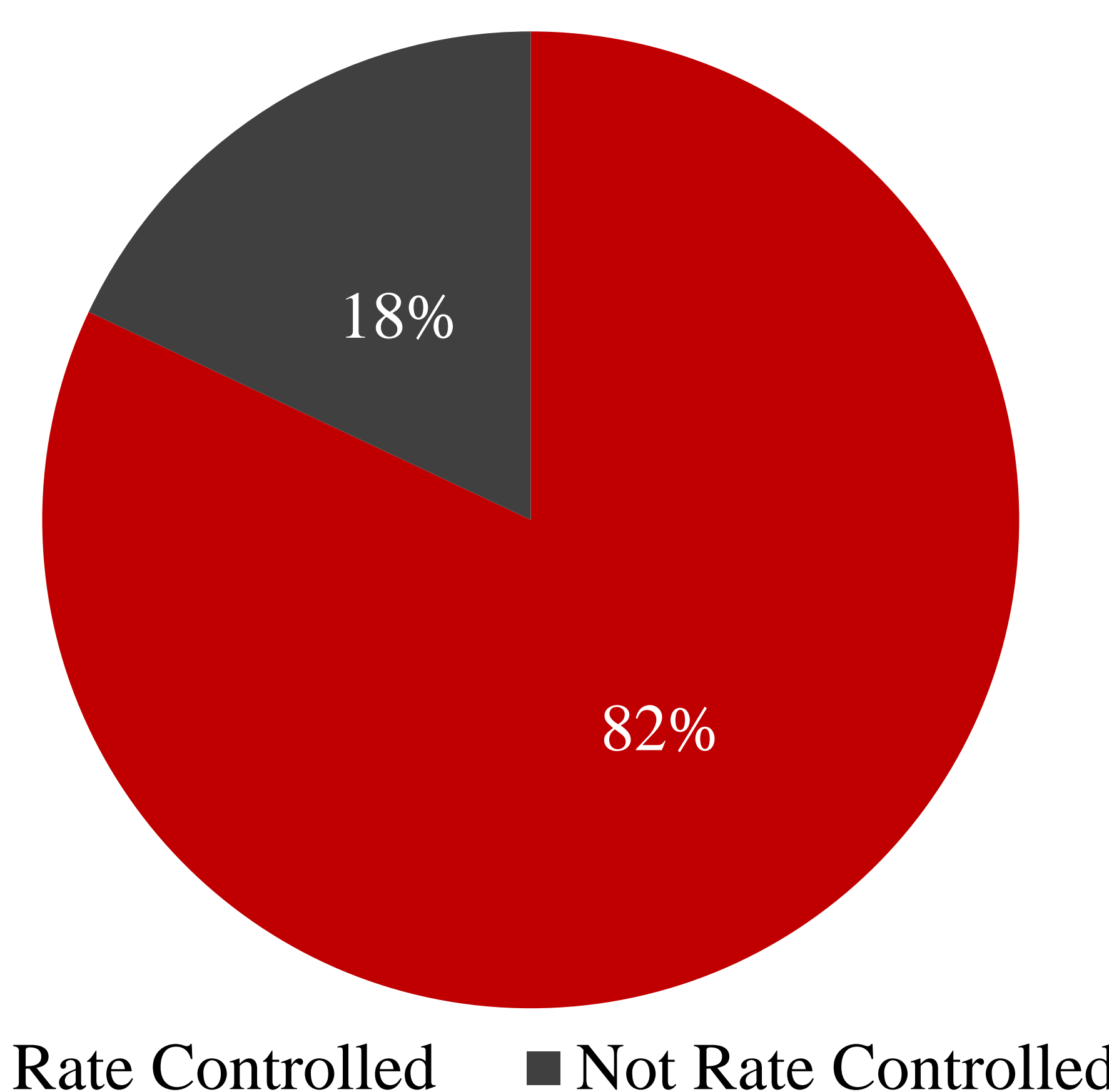
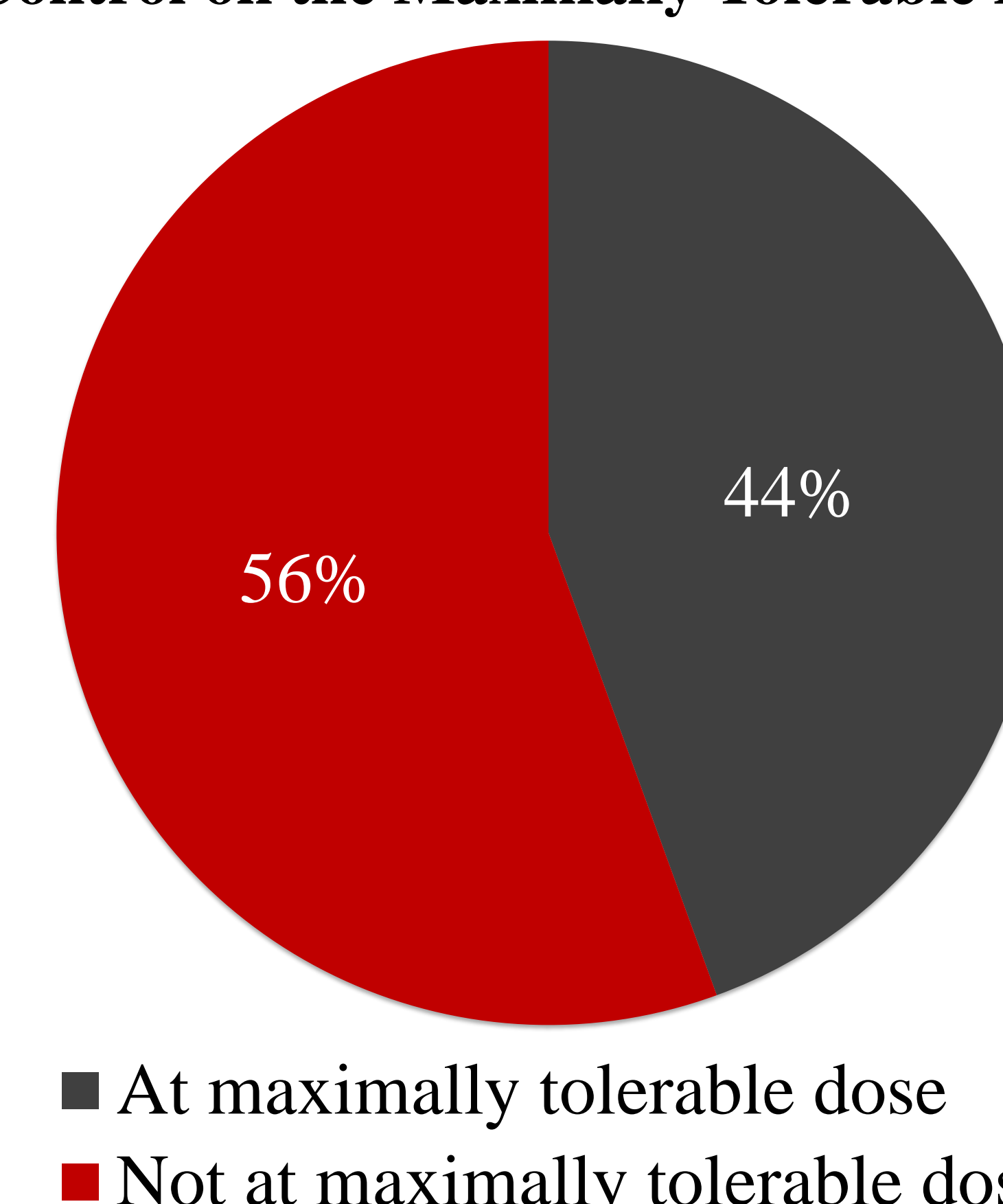


Figure 2: Proportion of Patients Who Didn't Achieve Rate Control on the Maximally Tolerable Dose



## RESULTS

Table 1: Effectiveness of Rate Control Medications

Medication Name	Percentage of Patients Achieving Rate Control (Ratio)
Sotalol	100% (1/1)
Verapamil	100% (1/1)
Diltiazem	87.5% (7/8)
Carvedilol	83.3% (5/6)
Metoprolol	79.5% (35/44)
Digoxin	75% (6/8)
Amiodarone	58.3% (7/12)

## CONCLUSIONS

- A large majority of patients achieved rate control, indicating that current strategies used in clinical practice are successful.
- Metoprolol appeared to be the most effective and commonly used rate control agent, whereas amiodarone appeared to be the least effective.
- Most patients who didn't achieve rate control were not at the maximally tolerable dose of their medication(s), indicating that optimizing medication doses would likely be a successful intervention.
- Limitations: possibly missing/outdated information in patient charts, small sample size, outliers included in average heart rate calculations
- More studies with larger and more variable samples should be conducted to confirm these findings.

## REFERENCES

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