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Rate and Rhythm Control Medications for Atrial Fibrillation: Do Adverse Effects Outweigh Benefits?

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Background: Improving symptoms is one of the main goals of Atrial Fibrillation (AF) therapies.(1,2) Current guidelines recommend that providers make clinical decisions regarding AF therapies based on a patients' symptoms.(3,4) Rate control medications minimize symptoms of AF; a rate control strategy targeting a resting heart rate of less than 80 is recommended for bothersome symptoms of AF.(3) Guidelines state that rhythm control medications are indicated if bothersome symptoms persist despite rate control medications.(4) Understanding the association of these therapies with patient-reported outcomes is important to guiding patient-centered clinical decisions.

Objectives: To determine the association of AF therapies with patient-reported outcomes.

Methods: The PaTH AF Longitudinal Cohort Study recruited participants (N=953) with an AF diagnosis and age ≥ 18 years across 4 academic medical centers.(5) Propensity-score matching was used to address potential confounding of the association between AF therapies (rate control medication and rhythm control medication) and patient-reported outcomes (quality of life, symptom severity, and emotional and functional status). Matching 1:10 was conducted separately for rate control medication and rhythm control medication. Analyses were restricted to individuals who could be matched to another participant with a similar probability (caliper ≤ 0.04) of receiving the therapy. This approach reduces the possibility of model extrapolations and the biasing effects of model misspecification.(6–8) We performed multiple linear regressions on propensity-matched cohorts to determine the association of AF therapies on patient-reported outcomes reported. AF therapies (rate and rhythm control medications) and individual characteristics (age, sex, and education level) and site were independent variables. AF-related quality of life, symptom severity, emotional and functional status were dependent variables. Illness characteristics (comorbidities and body mass index) were included as covariates.

Results: The sample (n=953) was 35% female with a mean age of 72 ± 10 . In the propensity-score matched subsamples, AF therapies were not associated with more favorable patient-reported outcomes. Prescription of rate control medication was associated with poorer functional status (β -3.68, 95% CI: -5.29, -2.07) and higher symptoms of depression (β 1.78, 95% CI: 0.24, 3.31). Prescription of rhythm control medication was associated with comparatively poorer AF-related quality of life (β -5.71, 95% CI: -10.38, -1.04).

Conclusions: In propensity-score matched samples controlling for BMI and comorbidities, prescriptions of rate and rhythm control medication were associated with less favorable patient-reported outcomes following the therapy. The adverse effects of AF therapies may outweigh the positive effects of sinus rhythm and rate control.

Title:

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Keywords:

Atrial Fibrillation, Patient-Report Outcomes and Symptoms

References:

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Abstract Summary:

Guidelines for managing atrial fibrillation currently recommend rhythm and rate control for individuals who report bothersome symptoms of atrial fibrillation. However, rate control and rhythm control medication often cause adverse effects, including dizziness and fatigue. Do these adverse effects outweigh the positive effects of sinus rhythm and rate control?

Content Outline:**Introduction:**

- The most recent guidelines for managing atrial fibrillation state that bothersome symptoms is the best indication to prescribe rhythm control medication, and that strict rate control targeting a resting heart rate of less than 80 may be used if an individual reports bothersome symptoms.

- However, these medications have adverse effects. We investigate whether the adverse effects of rate and rhythm control medications outweigh the positive effects of sinus rhythm and rate control.

Body:

- *Sample:* The PaTH AF Longitudinal Cohort Study recruited participants (N=953) with an AF diagnosis and age ≥ 18 years across 4 academic medical centers.
- *Statistical methods:* We performed multiple linear regressions on propensity-matched cohorts to determine the association of AF therapies on patient-reported outcomes.
- *Results:* AF therapies were not associated with more favorable patient-reported outcomes. Prescription of rate control medication was associated with poorer functional status (β -3.68, 95% CI: -5.29, -2.07) and higher symptoms of depression (β 1.78, 95% CI: 0.24, 3.31). Prescription of rhythm control medication was associated with comparatively poorer AF-related quality of life (β -5.71, 95% CI: -10.38, -1.04).

Conclusion:

- In propensity-score matched samples, prescriptions of rate and rhythm control medication were associated with less favorable patient-reported outcomes.
- The adverse effects of AF therapies may outweigh the positive effects of sinus rhythm and rate control.

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