

EARLY RHYTHM VERSUS RATE CONTROL IN RECENT-ONSET ATRIAL FIBRILLATION: SAFETY OUTCOMES FROM A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROL TRIALS

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BACKGROUND

Recent guidelines emphasize early rhythm control for selected patients with newly diagnosed atrial fibrillation (AF). However, the comparative safety of early rhythm versus rate control in recent onset (≤ 12 months) AF has not been comprehensively evaluated using randomized evidence alone.

METHODS

PubMed, Embase, and Cochrane were searched from inception to August 2025 for randomized controlled trials (RCTs) comparing early rhythm with rate control in recent onset atrial fibrillation and reporting ≥ 30 days of follow-up. Seven RCTs met inclusion criteria. Outcomes were major bleeding, ventricular arrhythmia, and arrhythmia related adverse events; defined as syncope, bradyarrhythmias, AV block, sustained supraventricular or ventricular arrhythmias, torsades de pointes, nonfatal cardiac arrest, conduction abnormalities, prolonged QTc, or new pacemaker/AICD implantation. Pooled risk ratios (RR) with 95% confidence intervals (CI) were estimated using random-effects models, and heterogeneity was assessed using the I² statistic.

RESULTS

Early rhythm control did not show significant difference in major bleeding compared with rate control (RR 0.93; 95% CI 0.68-1.26; $p=0.62$; I²=0%; Figure 1). Ventricular arrhythmias occurred more frequently in the rhythm-control group but did not reach statistical significance (RR 1.38; 95% CI 0.68-2.81; $p=0.37$; I²=0%; Figure 2). Early rhythm control was associated with a significant increase in arrhythmia related adverse events (RR 1.72; 95% CI 1.13-2.61; $p=0.01$; I²=19%; Figure 3).

CONCLUSION

Early rhythm control is equally safe in terms of major bleeding or ventricular arrhythmias but is associated with higher rates of arrhythmia related adverse events. These findings highlight the importance of careful selection and monitoring when initiating rhythm control therapy in recent onset AF.

Figure 1. Major bleeding



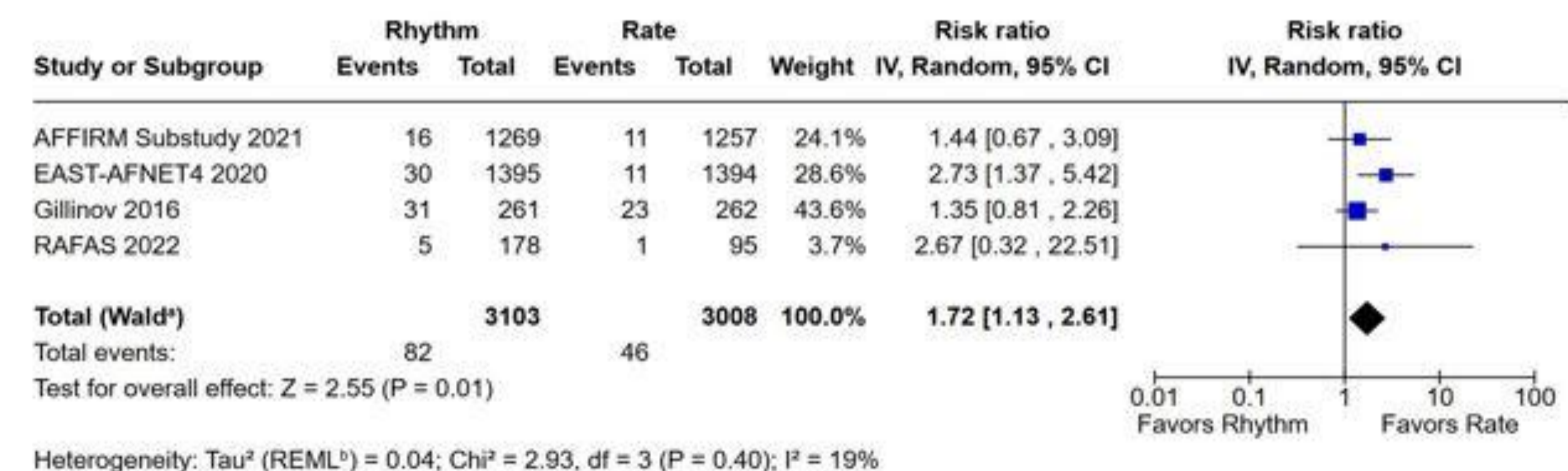
Footnotes
*CI calculated by Wald-type method.
^bTau² calculated by Restricted Maximum-Likelihood method.

Figure 2. Ventricular arrhythmia



Footnotes
*CI calculated by Wald-type method.
^bTau² calculated by Restricted Maximum-Likelihood method.

Figure 3. Arrhythmia related adverse events



Footnotes
*CI calculated by Wald-type method.
^bTau² calculated by Restricted Maximum-Likelihood method.