

Immediate versus staged complete revascularization in patients presenting with acute myocardial infarction and multivessel coronary artery disease: Pooled Analysis of Kaplan-Meier-Derived Individual-Patient-Data

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Background: Current guidelines recommend complete revascularization (CR) for patients with multivessel disease (MVD) presenting with acute myocardial infarction (AMI); however, the optimal timing of CR remains debated [1-3]. We aimed to compare the outcomes of immediate versus staged CR in this population.

Method: Following PRISMA and Cochrane methodological standards [4, 5], we systematically searched electronic databases from inception to February 2026 to identify randomized controlled trials (RCTs) comparing immediate versus staged CR in AMI patients with MVD. The primary outcomes were major adverse cardiac events (MACE) and all-cause mortality, assessed using reconstructed individual patient data (IPD) derived from published Kaplan–Meier curves. Secondary outcomes included cardiovascular mortality and unplanned repeat revascularization. Hazard ratios (HRs) were pooled using random-effects Cox regression models.

Results: Thirteen RCTs including 8,247 patients (3,855 [46.7%] immediate CR; 4,392 [53.3%] staged CR) were analyzed. There were no significant differences between strategies in the risks of MACE (HR, 0.88; 95% CI, 0.76–1.01; $p = 0.08$), all-cause mortality (HR, 1.30; 95% CI, 0.91–1.86; $p = 0.10$), or cardiovascular mortality (HR, 1.64; 95% CI, 0.96–2.78; $p = 0.07$). Immediate CR was associated with a significantly lower 4-year risk of unplanned repeat revascularization (HR, 0.44; 95% CI, 0.30–0.64; $p < 0.001$).

Conclusion: In AMI patients with MVD, immediate and staged CR strategies offer comparable risks of long-term MACE and mortality. Immediate CR, however, significantly reduces the risk of repeat revascularization.

Источники и литература

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Иллюстрации

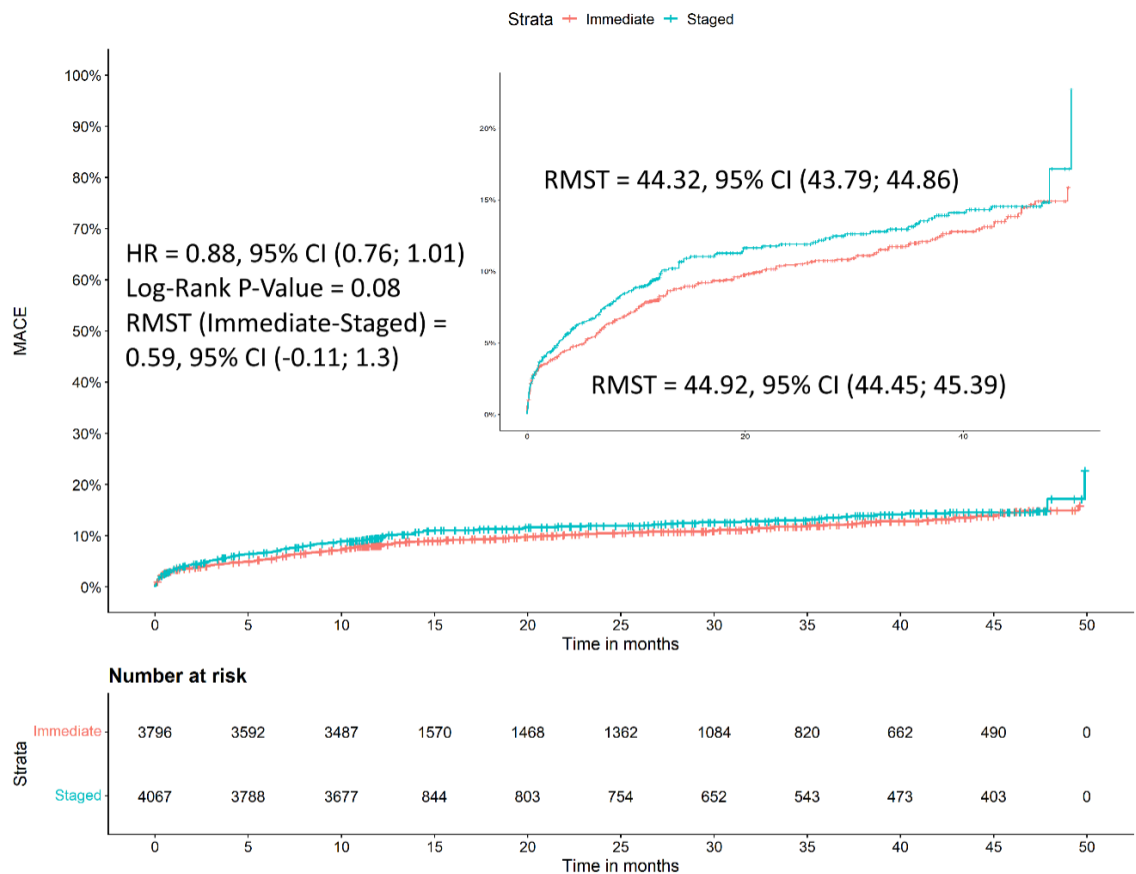


Рис. : Pooled Kaplan–Meier curves showing the cumulative risk of MACE following immediate and staged CR. CR, complete revascularization. MACE, major adverse cardiac events. RMST, restricted mean survival time in months.

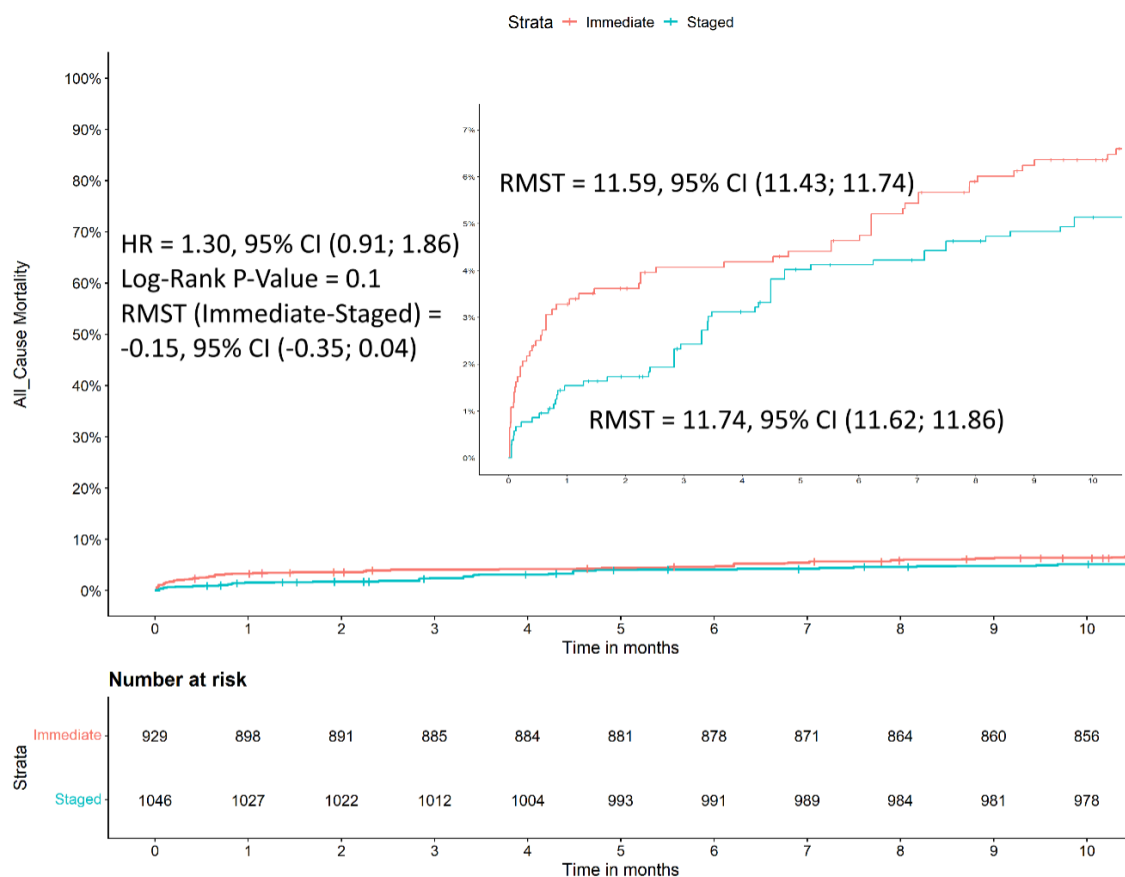


Рис. : Pooled Kaplan–Meier curves showing the cumulative risk of all-cause mortality following immediate and staged CR. CR, complete revascularization. RMST, restricted mean survival time in months.