The effect of P2Y12 inhibitor monotherapy according to bleeding risk: a systematic review and meta-analysis

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Background/Introduction: P2Y12 inhibitor monotherapy is a promising novel strategy to reduce bleeding complications compared to DAPT. To determine which patients benefit most, we investigated the effect according to bleeding risk.

Purpose: The study aim was to analyse the safety and efficacy of P2Y12 inhibitor monotherapy versus dual antiplatelet therapy (DAPT) after percutaneous coronary intervention (PCI) in patients with and without high bleeding risk (HBR).

Methods: PubMed was searched for randomized clinical trials (RCTs) comparing P2Y12 inhibitor monotherapy to DAPT after PCI. Risk ratios (RR) and adjusted risk differences (ARD) of net adverse clinical events (NACE), major adverse cardiac and cerebral events (MACCE) and major bleedings were calculated according to bleeding risk.

Results: Five RCTs including 31750 patients were selected. Monotherapy reduced major bleeding significantly in all patients (HBR: RR 0.63, 95% CI: 0.46 to 0.85; non-HBR: RR 0.58, 95% CI: 0.41 to 0.82) with a higher ARD in patients with HBR versus non-HBR. There was no difference between treatment effects on MACCE in both subgroups. Next to the expected higher number of bleeding events, we found an increase in MACCE in patients with HBR which resulted in a non-significant reduction of NACE (RR 0.89, 95% CI: 0.77 to 1.04). In patients without HBR, NACE was significantly reduced by monotherapy (RR 0.80, 95% CI: 0.67 to 0.96).

Conclusions: P2Y12 inhibitor monotherapy post PCI reduces bleeding complications without increasing ischemic events compared to DAPT, regardless of bleeding risk. HBR patients experience more bleeding and ischemic events without a net benefit of monotherapy.

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