Is aspirin an effective prophylaxis against VTE in patients undergoing routine total knee or total hip arthroplasty?

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Response/Recommendation: Yes. Aspirin chemoprophylaxis is effective against venous thromboembolism following THA and TKA. Besides its efficacy, aspirin is also inexpensive, convenient, safe to administer, and requires no routine blood monitoring.

Level of evidence: Strong

Rationale: The role of aspirin in the prophylaxis of venous thromboembolism (VTE) following total joint arthroplasty has been extensively studied. We found eight reviews (10 reports) discussed the rate of VTE between aspirin and LMWHs (1,2),Factor Xa inhibitors (3-6), and other anticoagulants (7-9).

Regarding deep vein thrombosis (DVT), aspirin was found to be as effective as LMWH and more effective than factor Xa inhibitors. The pulmonary embolism (PE) rate in patients treated with aspirin was comparable to those treated with warfarin and LMWH, but it was higher when compared to factor Xa inhibitors. In terms of secondary complications, aspirin was associated with a lower risk of bleeding events, including major, minor, and total bleeding. Additionally, there was no significant difference in the mortality rates between patients treated with aspirin and those treated with other anticoagulants following THA and/or TKA. *Hu et al*. carried out a study, whose findings demonstrated that the efficacy of aspirin was comparable with that of rivaroxaban in VTE prevention (3). Similar findings were reported by *Le et al*. through their systematic review and meta-analysis (6). Many researchers have compared the effectiveness of aspirin with other thromboprophylaxis agents, namely warfarin and LMWHs (1,10-12). While some pointed out that there was no statistically significant difference in VTE prevention between aspirin and LMWH or warfarin. *Freedman* et al. reported an increased risk of VTE using aspirin (13). Studies have compared the incidence of DVT in aspirin-treated patients with those prescribed other anticoagulants. Analyzing data extracted from these RCTs, *Drescher et* al. found that the risk of DVT and PE was not significantly different between aspirin and other anticoagulants (14).

In a recent analysis on national database, Parvizi et al. examine trends and outcomes in the use of low-dose aspirin versus other chemoprophylaxis for venous thromboembolism (VTE) prevention in total knee arthroplasty (TKA). Researchers assessed VTE risk profiles based on comorbidities and calculated odds ratios (ORs) and 95% confidence intervals (CIs) for various thromboprophylaxis methods in high and low VTE risk patients. Among 126,692 patients, the use of low-dose aspirin rose from 7.65% to 55.29%, while other prophylaxis decreased from 96.25% to 42.98%. Low-dose aspirin was more prevalent in low-risk populations (OR 1.17; 95%

CI, 1.15 to 1.20). Both high and low-risk patients on low-dose aspirin experienced reduced odds of DVT, PE, bleeding, infections, and hospitalizations compared to those on other prophylaxis regimens (15).

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