

ORAL TRANEXAMIC ACID FOR AN ADDITIONAL 24 HOURS POST - OPERATIVELY VERSUS A SINGLE PRE-OPERATIVE INTRAVENOUS DOSE AT REDUCING BLOOD LOSS FOR TOTAL HIP AND KNEE ARTHROPLASTY - RESULTS OF A RANDOMISED CONTROLLED TRIAL (TRAC-24)

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Introduction: 91% of blood loss in total hip replacement (THR) and 86% of blood loss in total knee replacement (TKR) occurs in the period after skin closure and the first 24 post-operative hours. TRAC-24 Randomised Controlled Trial (RCT) investigated if an additional 24-hour post-operative oral regime of Tranexamic acid (TXA) is superior to a once-only intravenous dose at surgery. TRAC-24 is the first orthopaedic prospective study to include patients with a history of thromboembolic, cardiovascular or cerebrovascular disease.

Methodology: A prospective, phase IV, single centered, open label, parallel group controlled trial on patients undergoing primary elective TKR and THR. The primary outcome was indirect calculated blood loss at 48 hours (IBL). 1085 patients were randomized on a 2:2:1 ratio over three different groups. Group 1 received an intravenous dose of TXA at the time of surgery and an additional 24-hour post-operative oral regime, Group 2 only received the intra-operative dose and Group 3 did not receive any TXA.

Discussion: Group 1 TKR experienced, on average, an additional 126 ml reduction in blood loss beyond group 2 ($p < 0.001$). Group 1 THR overall did not experience any additional reduction in blood loss beyond group 2. 4.7% ($n=51$) of all patients had previous thromboembolism, 5.8% ($n=63$) had previous cardiac stenting and 1.1% ($n=12$) had a previous cerebrovascular accident yet no differences in mortality or thromboembolic events were observed in any group.

Conclusion: The use of a single, intravenous, preoperative, 1-gram dose of Tranexamic acid decreased the total blood loss associated with TKR by 33.6% and with THA by 38%. The addition of another 24-hours oral tranexamic acid reduced blood loss in TKR by a further 11% but did not provide additional benefit in THR. Further study on the effect of patient weight is required in THR. Tranexamic acid is safe in patients with history of thromboembolic and cardiovascular disease.