#2299 - Clinical Study / Free Papers

Oral Tranexamic Acid For An Additional 24 Hours Post-Operatively Versus A Single Pre-Operative Intravenous Dose At Reducing Blood Loss For Total Knee Replacement And Total Hip Replacement - Results Of A Randomised Controlled Trial (TRAC-24)

Orthopaedics / Pelvis, Hip & Femur / Joint Replacement - Secondary

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Background
86% of blood loss in Total Knee Replacement (TKR) and and 91% in Total Hip Replacement (THR) occurs in the period after skin closure and the first 24 post-operative hours.

Objectives
TRAC-24 was established to identify if an additional 24-hour post-operative oral regime of Tranexamic acid (TXA) is superior to a once-only intravenous dose at surgery.

Study Design & Methods
This was a prospective, phase IV, single centered, open label, parallel group controlled trial on patients undergoing primary elective TKR and THR. A history of thromboembolic or cardiovascular disease were not exclusion criteria. 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 based on a statistical plan to analyse TKR and THR separately. 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.

Results
473, 478 and 134 patients were recruited to groups 1,2 and 3. All groups had comparable baseline characteristics. 4.7% of all patients had previous thromboembolism and 5.8% had previous cardiac stenting. Independent interim analysis identified an increased blood loss of >500ml in Group 3 for both TKR and THR. This resulted in an ethical decision to stop recruitment to said group.
The differences between group 1 and 2 were not the same for TKR and THR.
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, but subgroup analysis observed a 148ml mean less blood loss in group 1 than group 2 in the 36 patients weighing >100kg. No differences in mortality or thromboembolic events were observed in any group in either TKR or THR.

Conclusions

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.