Our hypothesis was that a single bolus IO injection of TXA will have a similar pharmacokinetic profile to TXA administered at the same dose IV” Boysen et al (2016).

Abstract:

Introduction: There is a lack of information regarding intraosseous (IO) administration of tranexamic acid (TXA). Our hypothesis was that a single bolus IO injection of TXA will have a similar pharmacokinetic profile to TXA administered at the same dose IV.

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Methods: Sixteen male Landrace cross swine (mean body weight 27.6 ± 2.6 kg) were divided into an IV group (n = 8) and an IO group (n = 8). Each animal received 30 mg/kg TXA via an IV or IO catheter, respectively. Jugular blood samples were collected for pharmacokinetic analysis over a 3 h period. The maximum TXA plasma concentration (Cmax) and corresponding time as well as distribution half-life, elimination half-life, area under the curve, plasma clearance and volume of distribution were calculated. One- and two-way analysis of variance for repeated measures (time, group) with Tukey’s and Bonferroni post hoc tests were used to compare TXA plasma concentrations within and between groups, respectively.
Results: Plasma concentrations of TXA were significantly higher (p < 0.0001) in the IV group during the TXA infusion. Cmax occurred at 4 min after initiation of the bolus in the IV group (9.36 ± 3.20 ng/μl) and at 5 min after initiation of the bolus in the IO group (4.46 ± 0.49 ng/μl). Plasma concentrations were very similar from the completion of injection onwards. There were no significant differences between the two administration routes for any other pharmacokinetic variables measured.

Conclusion: The results of this study support pharmacokinetic bioequivalence of IO and IV administration of TXA.

Reference:

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