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CONTRIBUTED REPORTS

**Total Knee Replacement
without Blood Transfusion–
83-Year-Old Female with
Kidney Disease**

Timothy Penn, MD - September 4, 2017

Knowledge and Compassion
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Total Knee Replacement without Blood Transfusion—83-Year-Old Female with Kidney Disease

Timothy Penn, MD

Abstract

Perioperative blood loss is a significant concern for patients undergoing total joint arthroplasty. A growing body of evidence has shown tranexamic acid (TXA) to be effective in decreasing perioperative blood loss and transfusion requirements in both primary and revision hip and knee arthroplasty. Dr. Penn reports using TXA in successful total knee replacement in an 83-year-old female with kidney disease.

Case Report

An 83 year-old female Jehovah's Witness presented with severe osteoarthritis in her right knee. She had pain for several years, but in the spring of 2017 had significant worsening of symptoms making walking difficult. She had a history of well-controlled hypertension & kidney disease, as well as a TIA in the past. Her only surgery was a C-section as a young woman. Initially she was treated with activity modification, OTC analgesics and a steroid injection, but she did not get significant lasting relief and so presented for a total knee replacement. Because of her kidney disease, she was chronically anemic with a pre-op Hgb of 10.6 - too high for erythropoietin. Discussed with her was the use of a tourniquet, and closed loop cell saver intra-operatively, use of tranexamic acid preoperatively as well as meticulous tissue handling. Her surgery took place in late summer 2017. One gram of tranexamic acid was administered by IV 1 hour pre-operatively and 1 gram as a direct application into the surgical site right before closure. Her blood loss was 200 ml - not enough for cell saver return. Post-operatively she went through her rehabilitation without difficulty. At 8 weeks, she was using a cane and having very little discomfort. She was released with the plan of

seeing her in 1 year for x-ray follow-up.

Dr. Penn's Notes

The TXA comes as 1 gram in a 10 mL vial. The pre-operative dose is given within the hour before incision, 1 gram IV over 10 minutes or more. Sometimes it is given full strength, but some of the nurses will dilute it with 10 mL of normal saline, doubling the volume. The reason it is given slowly is because it can cause nausea if given too fast. The exact timing of the pre-operative administration isn't critical.

The topical is undiluted 1 gram placed into the wound at closure. An additional gram around 3 hours post-OR was tried but seemed to cause a leukocytosis with some consistency. The third dose didn't seem to make a difference with respect to the postoperative Hgb. No special consideration is given for presence of stents or anything else, as this material hasn't been found to be thrombogenic. There is evidence that oral preoperative dosing is as effective as IV, but since our patients are NPO, we opt for the IV.

About the Author



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