

Tranexamic Acid and Total Joint Arthroplasty

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Editorial

Total Joint Arthroplasty (TJA) is one of the most common orthopaedic procedures performed worldwide that restores function and allows patients to maintain their activities of daily living [1]. Optimizing patients for surgery is of utmost importance, including conserving blood to minimize the risk of surgical site infection since immunomodulatory effects of allogenic blood [2] predisposes TJA patients to development of surgical site infection [3]. Blood conservation strategies in TJA can be broadly categorized into preoperative, intraoperative (surgical and pharmacological) and postoperative interventions [4-7]. Administration of Tranexamic Acid (TA) is one of the most effective available blood conservation strategies in TJA that based on timing of administration can be considered as either intraoperative or postoperative blood conservation strategy.

TA is a synthetic lysine derivative drug that binds to plasminogen and prevents interaction of plasminogen with fibrin that eventually leads to dissolution of fibrin clot [8]. As TA inhibits fibrinolysis, theoretically there is the risk of thrombosis in patients receiving TA [8]. Therefore, it is advised that patients with cardiac stents and previous thromboembolic events including ischemic stroke not be administered TA. TA can also cause gastrointestinal disturbance and its dose needs to be adjusted in patients with renal impairment [8]. The drug can be used intravenously in a weight based manner (10-20 mg/kg) or administered 1gm intravenously at the start of surgery and 1gm intravenously at the end of surgery or up to 3 hours from the first dose [9,10]. TA can also be applied topically to the surgical site as a method of providing hemostasis or injected intra articularly (1 g in 50 cc saline) [11,13]. Although oral administration of TA (25 mg/kg maximum 2 g, two hours preoperatively) has also been reported to be effective [14] it is not routinely used in TJA patients and intravenous and topical routes are preferred.

Along with studies have shown efficacy of TA in trauma patients [15] and various surgical procedures [16-19] there are growing evidence in TJA literature indicating TA is very effective in reduction of perioperative blood loss and allogenic blood transfusion following TJA [20-26]. TA is also effective when other blood conservation strategies are applied [27] during revision surgery [28] and bilateral TJA [29]. Additionally, compared to other blood conservation strategies such as autologous blood donation or preoperative administration of erythropoietin and iron supplements, administration of TA seems to be more cost effective [30].

In conclusion, TA is undoubtedly is one of the most efficient and safest blood conservation strategies currently available in patients undergoing TJA however, still more studies are required to find out

the most effective and safest dose, timing and route of TA administration in patients undergoing TJA.

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