

Comparison of the effects of continuous infusion versus stat intravenous tranexamic acid on the postoperative bleeding in synchronic bilateral total knee arthroplasty

Abstract

Background: Total knee arthroplasty (TKA) is associated with significant postoperative bleeding. Tranexamic acid (TXA) is a potent agent with high anti-fibrinolytic activity that can reduce bleeding in surgery. TXA is used intravenously, intra-articularly or in combination. There is little evidence on the effects and complications of intravenous TXA by continuous infusion and separate intravenous methods.

Aim: To compare the effect of tranexamic acid by continuous infusion with separate intravenous method regarding postoperative bleeding in the synchronic bilateral knee arthroplasty.

Materials and Methods: In this retrospective cohort study, 120 patients that underwent simultaneous bilateral knee replacement surgery and received intravenous tranexamic acid by continuous infusion (n=40) or single intravenous injection (n=40) or without injection (n=40), were evaluated in terms of hemoglobin changes (24 and 48 hours after surgery), gases used in surgery, and amount of bleeding.

Results: Out of 120 patients participating in the study, 61 (50.8%) were female and 59 (49.2%) were male. The mean age of patients was 65.8 ± 6.9 years. There was no statistically significant difference in terms of age, body mass index, sex, and frequency of underlying diseases between patients receiving tranexamic acid intravenously by continuous infusion, single intravenous injection, or without injection. The amount of postoperative bleeding ($P=0.003$) and the number of gases consumed during the operation ($P<0.001$) were significantly less in the patients with the single intravenous injection compared to the patients without injection. The amount of postoperative bleeding and the number of gases consumed during the operation were significantly less in the patients with the continuous infusion compared to patients with the single intravenous injection and patients without injection. ($P<0.001$).

Conclusion: The results of the present study showed that the rate of postoperative bleeding and the number of gases consumed in both continuous infusion and stat intravenous were lower compared to the control group. In addition, the amount of postoperative bleeding and the number of gases consumed in the continuous infusion method were significantly less compared to the stat intravenous method.

Keywords: Total knee arthroplasty, Tranexamic acid, Postoperative bleeding.