Combining Tranexamic Acid (TXA) with Iron Isomaltoside (IM) Reduces Perioperative Anemia and Blood Transfusion Rate of Intertrochanteric Fractures in Elderly Patients

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Purpose: Our objective was to evaluate the efficacy of combining IV TXA and iron isomaltoside (additional erythropoietin [EPO]) from immediately after admission to reduce the occurrence of perioperative anemia and blood transfusion rate in elderly intertrochanteric patients.

Methods: Between February, 2021 and October 2022, 134 patients were randomized into 3 groups (TXA group, TXA+EPO/IM group, and Control group). Patients in the TXA group and TXA+EPO/IM groups received IV TXA 1 g (200 mL) immediately posttraumatic admission (PTA). In addition, for patients in the TXA+EPO/IM group, 1000 mg of IM was injected over at least 15 minutes, and preoperative EPO (40,000 U) was administered from the day after injury until the day of the operation. In the TXA group and TXA+EPO/IM group, patients received 1000 mg of TXA before skin incision, during wound closure, at 3 hours and 6 hours after surgery, respectively.

Results: Among the 134 patients the mean age was 80.4 years. The hemoglobin levels in the control group during posttrauma day (PTD) 1 to 3 and postoperative day (POD) 1 to 3 were significantly lower than TXA group and TXA+EPO/IM group ($P<0.05$), but there were no significant statistical differences between the TXA group and the TXA+EPO/IM group. Regarding the preoperative transfusion rate in the control, TXA, and TXA+EPO/IM groups was 19.1%, 16.3%, and 11.4%, respectively. The postoperative blood transfusion rates, not only the control group, showed statistical differences between the TXA and TXA+ EPO/IM groups, respectively, but also between the TXA and TXA+EPO/IM groups. As for total transfusion rate results between the 3 groups, the control group was significantly greater than the TXA and TXA+EPO/IM groups, and there was also statistical difference between the TXA and TXA+EPO/IM groups. The incidence of anemia at POD 30 in both the control and TXA groups was higher than the TXA+EPO/IM group, respectively, while there was no significant statistical difference between the TXA group and the control group.

Conclusion: Combining tranexamic acid (TXA) with iron isomaltoside (IM) during the whole perioperative period could further reduce the occurrence of perioperative anemia and blood transfusion rate in elderly intertrochanteric patients.