

Investigating the effect of intravenous and local tranexamic acid compared to its combined method in knee arthroplasty

Abstract

Background: One of the most important complications of the total knee arthroplasty is perioperative bleeding and its consequences, such as hemoglobin decrease and hemodynamic instability, the need for blood transfusions, and an increase in the number of admission days and the resulting costs.

Aim: To investigate the effect of intravenous and local tranexamic acid compared to its combined method in total knee arthroplasty.

Materials and Methods: In this retrospective cohort study, 135 patients were selected to enter the study. In 45 of them IV tranexamic acid was used in knee arthroplasty, in 45 of them topical tranexamic acid and 45 of them had received combined intravenous and topical tranexamic acid. Then, by studying the completed files of patients who underwent knee arthroplasty until 2022, the data related to the results of the operation and the demographic characteristics of the patients were collected, and analyzed with SPSS software.

Results: 63 patients (46.7%) were female and 72 patients were male (53.3%). The mean and standard deviation of the age of the studied patients were 64.3 ± 5.9 . The mean and standard deviation of the bleeding rate in the intravenous and combined tranexamic acid groups were respectively: 740.2 ± 141.5 , 665.6 ± 136.3 , and 524.0 ± 150.5 , respectively. This difference was significant. ($p < 0.05$) in each of the three groups, the amount of bleeding after the operation was only related to the number of gases used during the operation. ($p < 0.05$) But there was no significant relationship with other variables. ($p > 0.05$)

Conclusion: Intravenous tranexamic acid is more effective compared to the local type, but its combined type is the most effective method to reduce the amount of bleeding associated with total knee arthroplasty.

Keywords: Total knee arthroplasty, Tranexamic acid, Fibrinolysis