

# The Comparison of Acute Normovolemic Hemodilution with Allogenic Blood Transfusion in Patients who Underwent Femoral Fracture Surgery

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## ABSTRACT

**Background:** Acute normovolemic hemodilution is an available technique to decrease the side effects of allogenic blood transfusion. The aim of this study was to compare acute normovolemic hemodilution with allogenic blood transfusion in adult patients who were scheduled for femoral fracture surgery.

**Methods:** In this randomized controlled trial, 50 patients were randomly allocated into two equal groups. General anesthesia was induced in all patients. After induction of anesthesia in case group (n=25) 500 ml blood was taken from patients, while the circulating blood volume was restored by ringer solution (3ml ringer for each 1ml of blood withdrawn). The blood extracted was re-infused during or after surgery according to the patient's hemoglobin and hemodynamic parameters. In case there was further need for blood, allogenic blood was transfused. In the control group (n=25), only allogenic blood was transfused according to estimated patient's blood loss. Patients' assessment was performed by an anesthesiologist who was blinded to the patients' allocation.

**Results:** Demographic and laboratory data were similar between both groups. Pre- and postoperative laboratory tests were similar in both groups except in mean platelet count ( $p=0.001$ ). The patients in the two groups were comparable regarding hemodynamic parameters. In the control group, 11 patients needed allogenic blood transfusion and in the case group, allogenic blood was transfused in 4 patients ( $p=0.03$ ).

**Conclusion:** This study suggested that acute normovolemic hemodilution autotransfusion reduced allogenic blood transfusion in patients who underwent femoral fracture surgery.

## KEYWORDS

allogenic blood transfusion; autologous blood transfusion; hemodilution