



TITLE: Hemoglobin Drop and the Need for Transfusion in Primary Knee Arthroplasty

Name: Fatema H. Madan
Affiliation: Salmaniya Medical Complex
Country: Kingdom of Bahrain
Email ID: Fatimaa.93@gmail.com

ABSTRACT

Background

Blood loss is still a serious adverse effect of total knee replacement (TKR), resulting in Hemoglobin drop and a higher need for blood transfusions. Multiple modalities are used to reduce intra-operative blood loss and hemoglobin drop for this procedure, such as placing a drain intraoperatively and Tranexamic acid (TXA) administration. This study aimed to investigate factors associated with hemoglobin loss and blood transfusion increased demand.

Patients and methods

We retrospectively looked at 223 patients who underwent primary unilateral or staged bilateral knee arthroplasty by a single surgeon from January 2013 until April 2018 in Salmaniya Medical Complex (SMC), Bahrain. We looked into patients' demographics such as age, gender, preoperative hemoglobin and hematocrit, postoperative hemoglobin and hematocrit, drain insertion intra-operatively, and the administration of Intravenous tranexamic acid intra-operatively. Eighty-three patients had a drain inserted intra-operatively, and sixty-nine patients received intra-venous Tranexamic acid during the procedure.

Results

Out of 223 patients, 152 patients were included after applying exclusion criteria. The mean hemoglobin (Hb) loss in patients who had a drain

inserted was 2.186 g/dL, while patients who received tranexamic acid had a mean of 1.609 g/dL. Multivariable regression analysis revealed that increased blood transfusion requirements postoperatively were significantly associated with reduced pre-operative Hemoglobin levels (p-value .004). Univariable analysis of the hemoglobin drop showed that the use of TXA would reduce Hb loss while a drain would increase Hb drop (p-value .003 and .002, respectively). Moreover, univariable analysis of blood transfusion requirements showed reduced pre-operative Hb, and placing a drain would increase blood transfusion demand (p-value <.001, .044 respectively), while administration of tranexamic acid would reduce blood transfusion demand (p-value 0.05).

Conclusion

Reducing the need for blood transfusion following primary total knee arthroplasty can be achieved by maintaining preoperative hemoglobin levels, administering tranexamic acid intra-operatively, and avoiding placing an intra-articular drain.



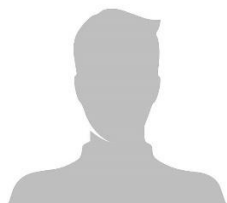
BIOGRAPHY

Fatema is an orthopedic surgery resident in Salmaniya medical complex, Bahrain.

Presenter Name: Fatema H. Madan

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Contact number: 00973-38386010



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