

## **When Should Complete Blood Count Tests Be Performed in Primary Total Knee Arthroplasty Patients?**

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**Introduction:** Routine laboratory studies are often obtained following total knee arthroplasty (TKA). Moreover, laboratory studies are often continued daily until the patient is discharged from the hospital regardless of medical management. The purpose of this study was to investigate utility and cost of routine complete blood count (CBC) tests following TKA. Secondly, to identify patient factors associated with abnormal lab values.

**Methods:** This retrospective review identified 484 patients who underwent primary TKA under a tourniquet at a single institution. Preoperative and postoperative CBC values were collected along with demographic data, use of tranexamic acid (TXA), and transfusion rates. Logistic regression models were calculated for all variables.

**Results:** Of the 484 patients who underwent primary TKA, 25 required transfusion (5.2%). Patients who required transfusion had a significantly lower pre-operative hemoglobin (11.47 g/dL) compared to patients who did not require transfusion (13.58 g/dL)  $p=0.005$ . Risk of transfusion was 5.2 times more likely in patients who were anemic preoperatively (95% CI 2.90-9.35)  $p<0.001$ . Without TXA, patients were 2.75 times more likely to receive a transfusion (95% CI 1.43-5.30)  $p<0.001$ . Length of surgery was not associated with increased risk of transfusion. There were no patients who received intervention for the outcome of platelet and white blood counts. Average number of CBC tests collected for patients who did not receive medical intervention was 2.89. This equated to \$76,287 in hospital charges.

**Conclusions:** Maintaining high quality patient care while being cost effective is critical to the new era of bundled payments for total joint arthroplasty. Routine postoperative CBC tests in patients with a normal preoperative hemoglobin and receive TXA who undergo TKA with a tourniquet do not add value to patient care. Patients who are anemic prior to TKA or do not receive TXA should obtain a CBC. Consideration should be taken to refrain from further CBC tests if intervention is not necessary after day one post-TKA.