

## The Effect of Preoperative Anemia on Complications Following Total Hip Arthroplasty

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**Introduction:** Complications following total hip arthroplasty (THA) can lead to increased costs and patient dissatisfaction. Current literature suggests that preoperative hematocrit levels may play an important role in determining risk for complications following THA. The purpose of this study was to determine the role of preoperative anemia status on 30-day complications following total hip arthroplasty.

**Methods:** Using the National Surgical Quality Improvement Program registry from 2006-2016, we identified all patients who underwent primary THA. Patients were placed into 3 cohorts based on preoperative hematocrit levels (Normal >36% [N=166,538], Mild Anemia 27%-36% [N=13,214], Severe Anemia <27% [N=541]). Differences in 30-day postoperative medical complications and readmission rates were compared using bivariate and multivariate analyses.

**Results:** Multivariate logistic regression analysis identified mild anemia compared to normal hematocrit as a significant risk factor for total complications (OR 1.46,  $p<0.001$ ), mortality (OR 2.06,  $p<0.001$ ), renal complications (OR 2.59,  $p<0.001$ ), respiratory complications (OR 1.89,  $p<0.001$ ), sepsis (OR 2.01,  $p<0.001$ ), wound infection (OR 1.36,  $p<0.001$ ), and urinary tract infection (OR 1.44,  $p<0.001$ ). Severe anemia was also a risk factor with a higher odds ratio for total complications (OR 1.99,  $p<0.001$ ). Both mild and severe anemia were significant risk factors for increased rates of perioperative blood transfusion (mild: OR 4.04, severe: OR 5.58), non-home discharge (OR 1.74, OR 1.64), and unplanned hospital readmissions (OR 1.42, OR 1.66).

**Conclusions:** Preoperative anemia is a significant risk for perioperative complications following primary THA. Even mild anemia can lead to significantly increased risks of mortality, medical complications, and unplanned hospital readmissions in THA. This study further supports the need for screening and preoperative intervention for patients in this at-risk group.