

QUESTION 15: Does an effort to increase preoperative hemoglobin concentration influence the rate of postoperative surgical site infections/periprosthetic joint infections (SSIs/PJIs)?

RECOMMENDATION: Despite the absence of evidence demonstrating a reduction in SSIs/PJIs with optimization of preoperative hemoglobin, we recommend that all efforts be made to address and optimize anemia preoperatively.

LEVEL OF EVIDENCE: Consensus

DELEGATE VOTE: Agree: 90%, Disagree: 4%, Abstain: 6% (Super Majority, Strong Consensus)

RATIONALE

With moderate evidence to suggest that preoperative anemia is associated with an increase in SSIs/PJIs and modalities exist to increase preoperative hemoglobin, the next logical step is to determine whether modification of this preoperative variable reduces the risk of SSIs/PJIs. However, no studies have investigated whether increasing preoperative hemoglobin decreases postoperative SSIs/PJIs. Studies have demonstrated that treatment of preoperative hemoglobin reduces postoperative transfusions [1], which have also been associated with PJIs [2–4], but the direct link between increased preoperative hemoglobin and decreased PJI/SSI reduction has not been established. This information would be important as it would help balance the potential benefits of preoperative iron treatments against the known risks and costs. Until evidence exists to suggest the administration of erythropoietin (EPO) and or iron supplementation safely decreases SSIs/PJIs, we cannot recommend their routine use in total joint arthroplasty for this purpose alone.

REFERENCES

- [1] Guinn NR, Guercio JR, Hopkins TJ, Grimsley A, Kurian DJ, Jimenez MI, et al. How do we develop and implement a preoperative anemia clinic designed to improve perioperative outcomes and reduce cost? *Transfusion*. 2016;56:297–303.
- [2] Hart A, Khalil JA, Carli A, Huk O, Zukor D, Antoniou J. Blood transfusion in primary total hip and knee arthroplasty. Incidence, risk factors, and thirty-day complication rates. *J Bone Joint Surg Am*. 2014;96:1945–1951.
- [3] Browne JA, Adib F, Brown TE, Novicoff WM. Transfusion rates are increasing following total hip arthroplasty: risk factors and outcomes. *J Arthroplasty*. 2013;28:34–37.
- [4] Everhart JS, Sojka JH, Mayerson JL, Glassman AH, Scharschmidt TJ. Perioperative allogeneic red blood-cell transfusion associated with surgical site infection after total hip and knee arthroplasty. *J Bone Joint Surg Am*. 2018;100:288–294.

