Lack of utility and excess cost of routine perioperative hematologic testing in patients undergoing elective neurosurgical procedures of the spine

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CONCLUSIONS

Of the 1516 cases identified, 138 required transfusion (9.10%). Operative factors associated with transfusion in multivariate analysis were thoracic or sacral involvement (OR: 3.48 [95% Confidence interval: 2.01, 6.04]; p<0.0001) and (OR: 2.29 [1.43, 3.68]; p=0.0006) respectively, multilevel surgery (OR: 2.29 [1.39, 3.76]; p=0.0011), Anterior+Posterior (flip) procedures (OR: 1.95, p=0.0082), and LOS (OR: 1.34 per 1 day increase, p<0.0001).

Associated patient factors were female sex (OR 2.49 [1.57, 3.94]; p=0.0001), and age (OR 1.37 [1.12, 1.68] per 10 year increase). Cervical spine involvement was inversely associated with transfusion (OR: 0.03 [0.01, 0.13]; p<0.0001). 527 cases involved the C-spine, 383 cervical only and 144 cervicothoracic. Zero C-spine only cases required transfusion. Cervicothoracic cases required 3 transfusions, combined transfusion rate=0.57%, NNTest =175.

Lumbar spine involvement (n=876) was not independently predictive of transfusion. Of 535 Lumbar-only procedures, 35 (6.54%; NNT=15) were transfused, as were 47 of 341 (13.78%, NNT=7) lumbosacral cases. Factors predicting transfusion in lumbar cases were multilevel surgery (OR=3.35, p

The rate of transfusion among elective nontraumatic Cervical-only cases, and single-level lumbar/lumbosacral cases without fusion, is zero.

Perioperative hematologic testing of these patients has no apparent utility, and signifies greater than $200,000 of excess charges. Transfusion requirement is strongly associated with specific case/patient factors. With further analysis, the need for testing is likely predictable on the basis of these factors, and superfluous testing/spending may be further mitigated on a patient-specific basis.