White Blood Cell Count and Neutrophil-lymphocyte Ratio Improve Prediction of Delayed Cerebral Ischemia in Good-grade Subarachnoid Hemorrhage

A presentation at the 2017 American Association of Neurological Surgeons Annual Scientific Meeting

Los Angeles, Calif. (April 26, 2017) — Winner of the DePuy Synthes Cerebrovascular Award, Fawaz Al-Mufti, MD, presented his research, White Blood Cell Count and Neutrophil-lymphocyte Ratio Improve Prediction of Delayed Cerebral Ischemia in Good-grade Subarachnoid Hemorrhage, during the 2017 American Association of Neurological Surgeons (AANS) Annual Scientific Meeting.

In order to determine the relationship of inflammatory cell biomarkers with delayed cerebral ischemia (DCI), study authors evaluated 849 aSAH patients who were enrolled into a prospective observational cohort study and had a white blood cell (WBC) differential obtained within 72 hours of bleed onset.

After controlling for clinical grade, thick SAH on admission and clipping aneurysm repair, WBC count was the strongest CBC predictor of DCI followed by a neutrophil-lymphocyte ratio. A significant interaction between clinical grade and WBC count revealed that good-grade patients with elevated WBC counts had increased odds for DCI indistinguishable from poor-grade patients. Multivariable Cox regression also showed that elevated WBC counts in good-grade patients increased the hazard for DCI to that of poor-grade patients. ROC curve analysis of good-grade patients revealed that WBC count is a stronger DCI predictor than modified Fisher Score and significantly improves multivariable DCI prediction models.

Study conclusion indicates that good-grade patients with early elevations in WBC count have a similar risk and hazard for DCI as poor-grade patients. Good-grade patients without elevated WBC may be candidates for a safe downgraded from the ICU, leading to cost savings for both patient families and hospitals.

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