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Abstracts

Articles appearing in the March 2018 issue

Systemic inflammatory response syndrome, infection, and outcome in intracerebral hemorrhage

Objective Systemic inflammatory response syndrome (SIRS) may be related to poor outcomes after intracerebral hemorrhage (ICH).

Methods The Ethnic/Racial Variations of Intracerebral Hemorrhage study is an observational study of ICH in white, black, and Hispanic participants throughout the United Sates. SIRS was defined by standard criteria as 2 or more of the following on admission: (1) body temperature <36°C or >38°C, (2) heart rate >90 beats per minute, (3) respiratory rate >20 breaths per minute, or (4) white blood cell count <4,000/mm^3 or >12,000/mm^3. The relationship among SIRS, infection, and poor outcome (modified Rankin Scale [mRS] score 3–6) at discharge and 3 months was assessed.

Results Of 2,441 patients included, 343 (14%) met SIRS criteria at admission. Patients with SIRS were younger (58.2 vs 62.7 years; $p < 0.0001$) and more likely to have intraventricular hemorrhage (IVH; 53.6% vs 36.7%; $p < 0.0001$), higher admission hematoma volume (25.4 vs 17.5 mL; $p < 0.0001$), and lower admission Glasgow Coma Scale score (GCS; 10.7 vs 13.1; $p < 0.0001$). SIRS on admission was significantly related to infections during hospitalization (adjusted odds ratio [OR] 1.36, 95% confidence interval [CI] 1.04–1.78). In unadjusted analyses, SIRS was associated with poor outcomes at discharge (OR 1.96, 95% CI 1.42–2.70) and 3 months (OR 1.75, 95% CI 1.35–2.33) after ICH. In analyses adjusted for infection, age, IVH, hematoma location, admission GCS, and premorbid mRS, SIRS was no longer associated with poor outcomes.

Conclusions SIRS on admission is associated with ICH score on admission and infection, but it was not an independent predictor of poor functional outcomes after ICH.

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Proinflammatory B-cell profile in the early phases of MS predicts active disease

Objective To assess whether any alteration of B-cell subset distribution or the cytokine production capacities of B cells could be associated with any stage of multiple sclerosis (MS) and could be predictive of MS evolution.

Methods We prospectively enrolled radiologically isolated syndrome (RIS), clinically isolated syndrome (CIS) naive patients with relapsing-remitting MS (RRMS) of any disease-modifying drug and healthy controls (HCs). Peripheral blood B-cell subset distributions and the interleukin (IL)–6/IL-10–producing B-cell ratio were assessed by flow cytometry to evaluate their proinflammatory and anti-inflammatory functional properties.

Results Twelve patients with RIS, 46 patients with CIS, 31 patients with RRMS, and 36 HCs were enrolled. We observed that a high IL-6/IL-10–producing B-cell ratio in patients with RIS/CIS was associated with the evolution of the disease in the short term (6 months). This imbalance in cytokine production was mainly explained by an alteration of the production of IL-10 by B cells, especially for the transitional B-cell subset. In addition, a significant increase in $IgD^-/CD27^-$ B cells was detected in patients with CIS and RRMS compared with HCs ($p = 0.01$). Apart from this increase in exhausted B cells, no other variation in B-cell subsets was observed.

Conclusions The association between a high IL-6/IL-10–producing B-cell ratio and the evolution of patients with RIS/CIS suggests a skew of B cells toward proinflammatory properties that might be implicated in the early phases of MS disease.

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