Inflammatory markers

Inflammatory markers, including C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and plasma viscosity (PV) are commonly used in primary care for diagnosis and monitoring of inflammatory conditions, including infections, autoimmune conditions, and cancers.

The inflammatory response is closely related to cancer progression and prognosis.

Among several factors, an early systemic inflammatory response has been shown to be associated with Brain edema. Ahn et al. investigated inflammatory markers in subjects with early CE which does not resolve, i.e., persistent CE after SAH.

Computed tomography scans of SAH patients were graded at admission and at 7 days after SAH for Brain edema using the 0-4 'subarachnoid hemorrhage early brain edema score' (SEBES). SEBES \leq 2 and SEBES \geq 3 were considered good and poor grade, respectively. Serum samples from the same subject cohort were collected at 4 time periods (at < 24 h [T1], at 24 to 48 h [T2]. 3-5 days [T3] and 6-8 days [T4] post-admission) and concentration levels of 17 cytokines (implicated in peripheral inflammatory processes) were measured by multiplex immunoassay. Multivariable logistic regression analyses were step-wisely performed to identify cytokines independently associated with persistent CE adjusting for covariables including age, sex and past medical history (model 1), and additional inclusion of clinical and radiographic severity of SAH and treatment modality (model 2).

Of the 135 patients enrolled in the study, 21 of 135 subjects (15.6%) showed a persistently poor SEBES grade. In multivariate model 1, higher Eotaxin (at T1 and T4), sCD40L (at T4), IL-6 (at T1 and T3) and TNF- α (at T4) were independently associated with persistent CE. In multivariate model 2, Eotaxin (at T4: odds ratio [OR] = 1.019, 95% confidence interval [CI] = 1.002-1.035) and possibly PDGF-AA (at T4), sCD40L (at T4), and TNF- α (at T4) was associated with persistent CE.

They identified serum cytokines at different time points that were independently associated with persistent Brain edema. Specifically, persistent elevations of Eotaxin is associated with persistent Brain edema after SAH¹.

1)

Ahn SH, Burkett A, Paz A, Savarraj JP, Hinds S, Hergenroeder G, Gusdon AM, Ren X, Hong JH, Choi HA. Systemic inflammatory markers of persistent cerebral edema after aneurysmal subarachnoid hemorrhage. J Neuroinflammation. 2022 Aug 4;19(1):199. doi: 10.1186/s12974-022-02564-1. PMID: 35927663.

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Last update: 2024/06/07 02:52

