

Headache

Association of Body Mass Index, Blood Pressure and Interictal Serum Levels of Cytokines in Migraine with and without Aura

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Background. Cytokines can act on neuronal receptors and cause neurovascular inflammation and contribute to pain.

The aim of the study was to clarify correlations among body mass index (BMI), blood pressure (BP) and serum levels of cytokines in migraine female patients.

Methods. 14 migraineurs with aura, and 12 – without aura during their interictal period were compared with 25 controls. Interleukin-8 (IL-8), soluble intercellular adhesion molecule-1 (sICAM-1), soluble vascular cell adhesion molecule-1 (sVCAM-1), matrix metalloproteinase-9 (MMP-9), interferon gamma (IFN- γ), monocyte chemoattractant protein-1 (MCP-1), transforming growth factor alpha (TGF- α) and plasminogen activator inhibitor-1 (PAI-1) were measured in serum by ELISA method.

Results. Migraineurs had significantly increased levels of IL-8, but decreased serum levels of PAI-1 and sICAM-1 during the interictal period, regardless of aura. BMI correlated with BP, and also with IFN- γ and MMP-9 only in patients with aura.

Conclusion. There were three correlations in migraine patients with aura that were absent in patients without aura: between IL-8 and PAI-1; MMP-9 and IL-8; IL-8 and sICAM-1. Migraineurs without aura, on the other hand, had correlations that patients with aura did not have (between PAI-1 and MCP-1, sICAM-1; between MMP-9 and sICAM-1, MCP-1; between TGF- α and PAI-1, MMP-9, sICAM-1; between sICAM-1 and MMP-9, PAI-1, MCP-1; as well as between sVCAM-1 and MCP-1). PAI-1, TGF and MMP-9 could be used as biomarkers to distinguish migraineurs from healthy individuals.