COMMENTS AND RESPONSES

Should Nonalcoholic Fatty Liver Disease Be Included in the Definition of Metabolic Syndrome? A Cross-Sectional Comparison With Adult Treatment Panel III Criteria in Nonobese Nondiabetic Subjects

Response to Sookoian et al.

The findings of Sookoian et al. (1) expand our recent research (2) and further suggest that the liver, the vessel wall, and adipose tissue share common inflammatory pathways. Intracellular adhesion molecule-1 (ICAM-1) is a transmembrane adhesion molecule involved in leukocyte migration to inflammatory sites, and soluble ICAM-1 levels have been associated with endothelial dysfunction and early atherosclerosis in the general population.

Innate immune response cells, including natural killer and Kupffer cells, are more common in the liver than in peripheral blood or other organs like the spleen; these cells play a key role in different animal and human models of liver injury, including endotoxin-, alcohol-, and viral hepatitis–induced injury (3,4). Recently, a pathogenetic role for endotoxin-induced liver injury has also been proposed for NAFLD (5).

Increased sinusoidal endothelial ICAM-1 expression was found to play an important role in innate immune cell recruitment and local cytokine production in the liver (5); furthermore, dietary factors, like a high-fat diet, enhanced adipose tissue ICAM-1 expression, and subsequent immune cell infiltration, inducing a local and systemic proinflammatory state in animal models (6). Altogether, these findings suggest that circulating ICAM-1 levels may be potentially useful not only for noninvasive assessment of liver injury in NAFLD but also for evaluating overall inflammatory balance and cardiometabolic risk in obesity-related metabolic disorders.

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