

Nutritional status, adipocytokine biomarkers, and endothelial dysfunction in the metabolic syndrome

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The metabolic syndrome has been identified by diagnostic criteria with an explosion of basic and clinical knowledge in recent years that has generated intense interest and controversy in this entity. Insulin resistance and central adiposity seem to correlate with established risk cardiovascular factors like hypertension, atherogenic dyslipidemia, and glucose intolerance. Both genetic and environmental influences modulate the ultimate risk that this clustering of chronic insults poses to the endothelium taking its toll in the form of silent as well as clinically evident cardiovascular events. The cellular and vascular accompaniments have shed some light into the underlying pathophysiology. Much research has focused on the vascular endothelium, which is an anatomical barrier that protects the vessel from the potentially harmful consequences of toxic substances, helps to maintain vascular homeostasis and tone, regulates local cellular activity, and modulates hemostatic, inflammatory, and reparative responses to injurious agents. Heightened, low-grade inflammatory processes as well as a continuum of vascular insults ranging from early endothelial derangements to advanced atherosclerosis have also been examined. The role of adipocytokines originating from adipose tissue is gaining increased attention, thus reinforcing the concept that fat is a metabolically active organ rather than inert tissue. These inflammatory biomarkers have been speculated to be mediators of oxidative stress and endovascular toxicity. Lifestyle factors, notably diet, nutritional state, and weight, are thought to be critical in this process. Further research is warranted into the complex pathogenetic mechanisms of adipose tissue and inflammation in the metabolic syndrome.

Biography

Ali A. Rizvi, MD is Professor of Medicine, Chief of the Division of Endocrinology, and Endocrinology Training Program Director at the University of South Carolina School of Medicine. He completed his Internal Medicine residency at the Cleveland Clinic, followed by a fellowship at Stanford University. His interests include the epidemiology, complications, and management of diabetes, the metabolic syndrome, and general endocrinology. He has authored more than 100 published articles, abstracts, and poster presentations and is active in teaching, clinical research, and volunteering.