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## *Antonio Hernández-Mijares*

University of Valencia, Spain

### **Leukocyte-endothelium interactions, mitochondrial dysfunction and inflammation parameters are enhanced in undernourished outpatient subjects**

Disease-Related Malnutrition (DRM) may represent a sustained low-grade inflammatory process, which can generate a state of oxidative stress with repercussions in the form of cardiovascular and metabolic diseases. The aim of this preliminary study was to evaluate markers of inflammation, oxidative stress and endothelial function in a malnourished outpatient population. A total of 138 outpatient subjects – 105 with normonutrition (NN), 10 with DRM without inflammation (DRM-I) and 23 with DRM and inflammation (DRM+I) – were included in the study. Nutritional diagnosis was performed according to the American Society for Parenteral and Enteral Nutrition (ASPEN). We also evaluated biochemical parameters, proinflammatory cytokines, adhesion molecules, leukocyte-endothelium interactions and mitochondrial parameters such as reactive oxygen species production, glutathione, mitochondrial membrane potential and oxygen consumption. DRM+I patients showed reduced albumin, prealbumin, RBP, lymphocytes and vitamin D and increased C3 levels with respect to the NN group, differences that were less noticeable in the DRM-I group. DRM+I was associated with a significant increase in inflammatory parameters (hsCRP, IL6 and TNF $\alpha$ ), leukocyte adhesion and adhesion molecules and a decrease in rolling velocity. Both DRM groups were characterised by increased oxidative stress, which was marked by a significant decrease in glutathione and mitochondrial oxygen consumption and an increase in ROS levels in the DRM+I group. The significant correlations between weight loss, enhanced inflammation and oxidative stress in DRM patients confirmed these relationships. Thus, our results show that DRM is associated with mitochondrial and endothelial dysfunction and an inflammatory state, which are more pronounced in a DRM+I population.

#### **Biography**

Antonio Hernández-Mijares obtained his PhD in 1988 from the University of Valencia. He is the Head of the Endocrinology Service of the Hospital Doctor Peset and Professor of the Department of Medicine at the Faculty of Medicine of the University of Valencia (Spain). He has extensive experience in the field of Nutrition and Metabolic Disorders. He has made several stays in national and international centers of recognized prestige and he has been the main Investigator of several national funded competitive research projects. He has published more than 170 papers in reputed journals and has been serving as an Editorial Board Member of repute.

[hernandez\\_antmij@gva.es](mailto:hernandez_antmij@gva.es)

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