Circulating Microparticles From Patients With Coronary Artery Disease Cause Endothelial Dysfunction

**Micropartículas circulantes de pacientes con enfermedad coronaria causan disfunción endotelial**

To the Editor,

In a recent article in Revista Española de Cardiología, the authors considered the risk factors for cardiovascular disease associated with this condition. Both experimental and clinical studies have indicated that endothelial dysfunction can be considered as a risk factor for cardiovascular disease with worse endothelial function, itself considered an independent risk factor for adverse cardiovascular events in patients diagnosed with stable ACS. Similarly, Nozaki et al. studied concentrations of CD144+ as a marker of endothelial dysfunction in a strategy using different microparticles. These give an indication of endothelial dysfunction in a population at high risk of experiencing ACS. The authors found that high MP levels are an independent predictor of cardiovascular death and ACS. This biomarker provides better stratification of cardiovascular risk and allows patients to benefit from more aggressive therapy that might improve their prognosis. Endothelial dysfunction caused by circulating MP is a risk factor for cardiovascular disease and can be added to the risk factors considered as “traditional.” Different biomarkers can be measured, and confirm the importance of these MP in the genesis of ACS.

Cristóbal Bueno Jiménez
Departamento de Medicina Interna, Hospital Universitario Infanta Cristina, Badajoz, Spain

E-mail address: cristobalbj@unex.es

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Circulating Microparticles From Patients With Coronary Artery Disease Cause Endothelial Dysfunction. Response

**Micropartículas circulantes de pacientes con enfermedad coronaria causan disfunción endotelial. Respuesta**

To the Editor,

I would like to thank the interesting comments of Bueno Jiménez et al. published in Revista Española de Cardiología in relation to the Editorial article where I discussed the plausibility of the exposure to ambient ultrafine particles (UFP) as a risk factor for cardiovascular diseases. Numerous epidemiological studies support the association of exposure to ambient particulate matter (PM) with cardiovascular ischemic endpoints and substantial experimental animal work support the feasibility for causality in the case of atherosclerosis. While it is likely that PM with a smaller particle size such as UFP carry greater cardiovascular toxicity than particles with larger size, the possibility that inhaled UFP could translocate and access the systemic circulation still awaits more definitive confirmation. Ambient PM can lead to systemic vascular effects by several hypothetical mechanisms that still remain to be elucidated. The author’s comment about the need to employ novel biomarkers for endothelial dysfunction, such as circulating endothelium-derived microparticles (EMP), that can better capture the cardiovascular risk potentially attributable to ambient PM and UFP is very appropriate as they could also aid in the identification of pathogenic mechanisms. EMPs, characterized by different phenotypes such as CD31+/CD41−, CD31+/annexin V+, CD144+ and/or CD62e− appear not only to reflect endothelial dysfunction and serve as a stratifying biomarker but also to exert pathogenic actions such as procoagulant