



Letter to the Editor

Endothelial function features and properties of large vessel behavior in systemic autoimmune diseases: a cross-talk among cardiovascular disease risk factors



Dear Prof. Shoenfeld,

There is growing research seeks understand endothelial function features and properties of large vessel behavior in autoimmune rheumatic diseases (ARDs), such as rheumatoid arthritis, systemic lupus erythematosus, systemic autoimmune myopathies, antiphospholipid syndrome, systemic sclerosis, Sjögren's syndrome, and mixed connective tissue [1–4]. These diseases are defined as heterogeneous group of disorders commonly characterized by systemic and chronic inflammatory processes leading to high morbidity and mortality for cardiovascular diseases (e.g., myocardium infarction, stroke, and congestive heart failure) [1–3].

Cardiovascular diseases are preceded by subclinical endothelial dysfunction and increased arterial stiffness responsible for contributing to accelerated atherosclerosis. The probable mechanisms related to ARDs are linked with traditional risk factors (e.g., hypertension, diabetes, dyslipidemia, and sedentary behavior). Similarly, non-traditional risk factors are also associated the immune-mechanisms present in innate and adaptive immunity (e.g., cytokines, chemokines and endothelial adhesion molecules) [2].

Regarding traditional risk factors, higher prevalence in several ARDs including mainly rheumatoid arthritis and systemic lupus erythematosus, has been proposed greater impact in vascular dysfunction by these factors. Interestingly, cross talk between traditional risk factors and nontraditional risk factors have been observed in these diseases [4]. Smoking and dyslipidemia are linked with disease severity and worse prognosis and have been observed in rheumatoid arthritis, in which the joint deformities can lead to decreases in strength, resulting in impairment in vascular function and structure. Also of note, abnormalities in lipid metabolism in rheumatoid arthritis and systemic lupus erythematosus have been observed. These findings suggest that traditional risk factors are strongly associated with vascular dysfunction and structure [5–10].

Contrasting these suggestions, in other ARDs, recent studies have shown greater presence of nontraditional risk factors in accelerated atherosclerosis and impairments in vascular function and structure. Findings by numerous research groups from the world are related to diseases such as mixed tissue disease, antiphospholipid syndrome, systemic sclerosis, Sjögren's syndrome, and others, indicated that chronic inflammatory processes can be more important compared to the traditional risk factors. The data suggest greater involved by pro-inflammatory cytokines and auto-antibodies [1,5,11–14].

The presence of these factors is not novel in ARDs. Besides, there is much to be done to better understand the potential determinants of endothelial dysfunction and impairments in vascular structure. The main question that emerges is if endothelial dysfunction and arterial stiffness could be determined mainly by traditional or nontraditional risk factors. Few studies have completely analyzed these parameters

together in different disease phases. Similarly, emerging evidence points out that sedentary behavior is of greater importance in vascular function and structure.

There is therefore necessity for studies that integrates these parameters, which could generate greater contribution to advances in this discussion. Understanding the potential determinants involved in accelerated atherosclerosis in ARDs, could contribute to better approaches for therapy management and health care in these patients.

Conflict of interest

All authors declare no conflict of interest.

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