Clinical Rheumatology (2018) 37:1539–1546
https://doi.org/10.1007/s10067-018-4051-0

ORIGINAL ARTICLE

Clinical and laboratory aspects of dyslipidemia in Brazilian women with systemic lupus erythematosus

Ajax M. Atta[1] · João Paulo C. G. Silva[2] · Mittermayer B. Santiago[3] · Isabela S. Oliveira[1] · Rodrigo C. Oliveira[1] · Maria Luiza B. Sousa Atta[1]

Received: 20 September 2017 / Revised: 3 January 2018 / Accepted: 22 February 2018 / Published online: 8 March 2018

Abstract

Systemic lupus erythematosus (SLE) is associated with dyslipidemia, atherosclerosis, and cardiovascular disease. In this study, we investigated the presence of dyslipidemia in Brazilian SLE patients by evaluating their lipid profile and immune status, including the production of autoantibodies and cytokines involved in atherogenesis. Ninety-four female SLE patients participated in this study and, based on their lipid profile, were classified as dyslipidemic or not. All were tested for antinuclear antibodies (ANAs), antiphospholipid antibodies, and autoantibodies to extractable nuclear antigens and double-stranded DNA. Serum levels of apolipoproteins A and B, C3, C4, and C-reactive protein were measured, as well as serum levels of interleukin (IL)-6, tumor necrosis factor (TNF)-α, and IL-10. Lupus activity was scored according to the Systemic Lupus Erythematosus Disease Activity Index 2000. Sixty-nine patients (73.4%) had dyslipidemia, and the remaining 25 patients (26.6%) were non-dyslipidemic. Lupus activity was correlated with non-high-density lipoprotein cholesterol and triglyceride (TG) levels (non-HDL-C, $r = 0.34$ and $p = 0.0043$ and $r = 0.46$ and $p < 0.0001$, respectively). Atherogenic indexes apolipoprotein B/apolipoprotein A and TG:HDL-C ratios were higher in dyslipidemic women, and TG:HDL was correlated with disease activity ($r = 0.40$, $p = 0.0007$). IL-6, TNF-α, and IL-10 levels were similar between groups; however, a positive correlation between IL-6 and CRP levels was only observed in the group with dyslipidemia ($r = 0.55$, $p < 0.0001$). Female Brazilian SLE patients present a high prevalence of dyslipidemia and exhibit a higher risk of cardiovascular diseases as compared with female SLE patients without dyslipidemia and healthy individuals.

Keywords Autoantibody · Cytokine · Dyslipidemia · Systemic lupus erythematosus

Introduction

An important clinical manifestation of systemic lupus erythematosus (SLE) is dyslipidemia and, consequently, associated atherosclerosis and cardiovascular diseases (CVDs). Currently, the estimated prevalence of subclinical atherosclerosis in lupus patients is high according to examination of the carotid artery by ultrasonography, tomography, magnetic resonance imaging, and perfusion studies. Evidence also suggests that cardiovascular events and cerebral disease affect between 6 and 22% of patients with SLE [1, 2]. However, the differences in prevalence among studies are associated with variations in lupus activity and the methodologies employed in their determination [3]. The Framingham study verified that women aged 35 to 44 years with lupus have a 50-fold greater risk of myocardial infarction as compared with women of the same age in the general population without SLE, with such cardiovascular events occurring more frequently in premenopausal women [4, 5]. The risk factors for CVD in lupus patients are similar to those already known in the general population (obesity, hypertension, and insulin resistance, among others). However, the Toronto Risk Factor Study demonstrated a greater number of risk factors in SLE patients relative to those usually observed in people without lupus. However, the prevention of future cardiovascular events in these individuals does not appear to be avoided

✉ Ajax M. Atta
ajaxmatta@gmail.com

[1] Laboratório de Pesquisa em Imunologia, Faculdade de Farmácia, Universidade Federal da Bahia, Salvador, Bahia 40170115, Brazil

[2] Programa de Pós-Graduação em Imunologia, Universidade Federal da Bahia, Salvador, Brazil

[3] Escola Bahiana de Medicina e Saúde Pública, Salvador, Brazil