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Original Investigation

Cardiovascular risk in systemic lupus erythematosus☆

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ABSTRACT

Background: Patients with systemic lupus erythematosus (SLE) have a higher frequency of traditional cardiovascular risk factors (CVR). This, combined with the presence of non-traditional cardiovascular risk factors, increases the probability of cardiac events by five times.

Objective: To determine the prevalence of CVR factors in a population of patients with SLE.

Material and methods: A descriptive, cross-sectional, observational study in 51 patients with the diagnosis of SLE.

Results: A lupus dyslipoproteinaemia pattern was reported, of which 52.9% had hypo-alpha-lipoproteinaemia, 49% hypercholesterolaemia, 35.3% hypertriglyceridaemia, and 19.6% with an elevated c-LDL. The comorbidities found were, 31.4% with obesity, 27.5% with high blood pressure, and 6% suffered from diabetes mellitus. Predominant non-traditional CVR factors were associated with disease activity, with 90.1% taking glucocorticoids, 70.6% had low levels of complement C3, 41.2% had low levels of complement C4, 66.7% had a CRP > 2 mg/l, 56.9% had a SLEDAI-2K score greater than 4 points, 29.4% had more than 10 years of disease duration, and 25.5% had lupus nephritis. As regards the presence of antibodies associated with CVR, 58.8, 9.8, 74.8 and 3.9% had anti-Smith antibodies, lupus anticoagulant, anti-beta2glycoprotein I, and positive anticardiolipin, respectively.

Conclusions: Patients with SLE have a pro-inflammatory and atherogenic state, increasing the risk of developing cardiovascular diseases, and therefore a higher incidence of traditional risk factors, such as the presence of factors that promote chronic inflammation.

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Riesgo cardiovascular en lupus eritematoso sistémico

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RESUMEN

Antecedentes: Los pacientes con lupus eritematoso sistémico (LES) tienen mayor frecuencia de factores de riesgo cardiovascular (RCV) tradicionales, esto sumado a la presencia de factores de RCV no tradicionales, aumenta la probabilidad de eventos cardiacos hasta 5 veces.

Objetivo: Determinar la frecuencia de los factores de RCV en una población de pacientes con LES.

Materiales y métodos: Se realizó un estudio descriptivo, transversal, observacional, en 51 pacientes con diagnóstico de LES.

Resultados: Se reportó el patrón lúpico de dislipoproteinemia ya que el 52,9% presentó hipoalfalipoproteinemia, 49% hipercolesterolemia, 35,3% hipertrigliceridemia y 19,6% elevación de c-LDL. Con respecto a las comorbilidades el 31,4% presentó obesidad, 27,5% hipertensión arterial y 6% diabetes mellitus. Los factores de RCV no tradicionales que predominaron fueron los asociados con la actividad de la enfermedad, el 90,1% tomaba glucocorticoides, 70,6% presentó niveles bajos de C3, 66,7% tuvo PCR > 2 mg/l, 56,9% tenía más de 4 puntos de SLEDAI-2K, 41,2% presentó niveles bajos de C4, 29,4% tenía más de 10 años de duración de la enfermedad, 25,5% tenía nefritis lúpica. Con lo que respecta a la presencia de anticuerpos asociados a RCV el 58,8, 9,8, 74,8 y el 3,9% presentaron anti-Smith, anticoagulante lúpico, anti-beta 2 glicoproteína I, anticardiolipinas positivas, respectivamente.

Conclusiones: Los pacientes con LES presentan un estado proinflamatorio y aterogénico, aumentando el riesgo de desarrollar enfermedades cardiovasculares tanto por mayor incidencia de los factores de riesgo tradicionales, como por la presencia de factores que promueven una inflamación crónica.

Introduction

Systemic lupus erythematosus (SLE) is an autoimmune disease of unknown etiology which is characterized by the activation of polyclonal T and B lymphocytes, production of autoantibodies and formation of immune complexes that cause damage to tissues and organs.[1]

Patients with SLE exhibit a higher incidence of atherosclerosis than the general population,[2] as well as an increased risk of acute myocardial infarction, and they have a cardiovascular risk (CVR) 5–6 times higher than the general population.[3]

Patients with SLE have a higher frequency of traditional CVR factors.[4,5] They have dyslipidemia with an atherogenic lipid profile called «dyslipoproteinemia lupus pattern», characterized by elevated levels of total cholesterol, triglycerides, low density lipoprotein (LDL-c), and A lipoprotein, as well as decreased levels of high density lipoprotein (HDL-c).[6] The patients with SLE also have more frequently diabetes mellitus (DM) due to the significant decrease in insulin sensitivity and to the high prevalence of metabolic syndrome.[7,8] In the same way, they have a higher frequency of systemic arterial hypertension (SAH), cigarette smoking and sedentary lifestyle.[6]

Despite the foregoing, the high CVR cannot be explained solely by the traditional risk factors. The effect of chronic inflammation in the development of atheromatous plaque and accelerated atherosclerosis is well known, and therefore it is considered the presence of other CVR factors associated with the disease, the disease activity and the treatment used, known as nontraditional risk factors. Among them there are the high levels of C-reactive protein (CRP) which have been associated with the presence of carotid atheromatous plaques.[9] Elevated basal levels of CRP are predictors of mortality and it has been observed that levels higher than 2 mg/l are a CVR factor independently of other risk factors.[10]

The disease activity has been associated with higher CVR, it can be measured by the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI), which consists of a systematic review (physical examination, interrogation and laboratory analyses), and it determines with some certainty the degree of activity at a given moment which needs to be manifest at least 10 days before its carrying out.[11] An increase of 6 points in the SLEDAI index during one year is correlated with an increase of 5% in the CVR. It has been found a relationship between higher hypertriglyceridemia, hypercholesterolemia and hypoalphalipoproteinemia and a higher activity index.[6]

Lupus nephritis has been associated with accelerated atherosclerosis.[6,12] Up to 40% of the deaths in patients with lupus nephritis are due to cardiovascular causes,[13] which can be due to the higher tendency to SAH and dyslipidemia with atherogenic pattern.

It has been found that patients with SLE who have atheromatous plaque show higher frequency of anti-Smith (anti-Sm), anti-ribonucleoprotein and anticardiolipin (aCL) antibodies compared with those patients without atheromatous plaque,[6] as well as of atherosclerosis.[14] The aCL have