Metabolic Syndrome in Systemic Lupus Erythematosus

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Editorial

Metabolic syndrome (MetS) comprises pathological conditions that include insulin resistance, visceral obesity, arterial hypertension and dyslipidemia, which favors the development of cardiovascular diseases. [1] Abdominal obesity and insulin resistance are the core features of MetS; however, inflammation, endothelial dysfunction, uric acid levels, and oxidative stress are thought to be associated with insulin resistance and MetS. [2]

Central obesity is considered to be one of the most important determinants of the low-grade chronic inflammation present in MetS, but there are normal weight individuals with MetS. Furthermore, some classical inflammatory conditions, like systemic lupus erythematosus which present a higher MetS prevalence is better explained by insulin resistance rather than obesity [3] reinforcing the importance of insulin sensitivity as was proposed in the original concept given by Reaven. [1]

Systemic Lupus Erythematosus (SLE) is an c autoimmune disease characterized by multisystem organ involvement and by high titers of auto antibodies against several nuclear and cytoplasmatic antigens. [4]

Whereas the impact of infections and active disease on mortality has diminished dramatically over the years, due to intensive treatment, cardiovascular disease (CV) has emerged as the leading cause of death in these patients.[5] Increased risk of coronary heart disease (CHD) in SLE is not explained by the classic CHD risk factors.[6-8]

Reaven [1] has proposed the concept of metabolic syndrome (MetS) in 1988. Since then, many researchers believe that insulin resistance is the pathophysiological process underlying the clustering of CV risk factors in MetS and that insulin resistance increases the values of clinical diagnosis of MetS. [9-12] Therefore, insulin resistance and MetS are clearly strong candidates to justify the increase in CHD in patients with SLE. There are several mechanisms by which higher severity and frequency of insulin resistance in SLE patients could be explained, such as obesity, inflammatory markers, and the medication to treat SLE patients, especially glucocorticoids.

Several studies have demonstrated that SLE patients have more severe insulin resistance compared with the general population. [8,13-15] Insulin resistance may contribute to the pathogenesis of MetS through hyperglycemia, compensatory hyperinsulinemia, and imbalanced insulin action [16]. Chung et al. [14] found a prevalence of 44.1% of insulin resistance in patients with SLE. Several studies have also shown high MetS prevalence in patients with SLE in developed countries. MetS classification according to National Cholesterol Educational Program (NCEP ATP-III) showed a prevalence of 16% in Netherlands [17], from 17% to 20% in Spain [18,19], 18% in the United Kingdom [8], and 29.4% and 32.4% in the United States [14], when the authors used NCEP ATP-III or World Health Organization (WHO) classification, respectively. The later classification requires direct determination of insulin resistance [20]. In Italy [21], also using World Health Organization (WHO) classification, it was found a prevalence of 28%. In Latin

American countries, this scenario is not very different, and MetS classification according to American Heart Association/ National Heart, Lung, and Blood Institute (AHA/NHLBI) showed a prevalence which ranged from 28.6% in Argentina [22] to 38.2% in Puerto Rico[23]. In Brazil, a South American emerging country with a continental dimension, classification according to NCEP ATP-III reports have found a prevalence of 20% in Northeast [24], and 32.1% in Southeast. [25]

Our group [26] reported that 24 of 58 (41.4%) patients met the criteria for metabolic syndrome compared with 11 of 105 (10.5%) controls, to our knowledge the highest prevalence of MetS in patients with SLE to date. Social class is associated with the prevalence of all the five risk factors that define the syndrome and it has already been observed that the prevalence of MetS is higher among the poorest. In female lupus patients, MetS has been associated with lower income and government health insurance. [18,23,27] Moreover, susceptibility factors to the syndrome include genetic and racial factors, aging, endocrine disorders, lifestyle, and diet habits and MetS prevalence over time has been verified in the general population [28]. Thus, it is likely that MetS prevalence is also increasing in SLE patients. Altogether, these factors could contribute to the differences found in MetS frequency among all mentioned studies.

Therefore, routine inclusion of simple indices of insulin resistance in SLE patients is strongly suggested as well as non-pharmacological and pharmacological measures when necessary to improve insulin sensitivity.

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