

Preliminary analysis of the ratios between advanced-glycation end products (AGEs) and their soluble receptor (sRAGE) as biomarkers in systemic lupus erythematosus

Irene Carrión-Barberà¹, Laura Tío², Carolina Pérez-García¹, Anna Ribes², Andrea Toloba³, Victoria Abad¹, Luciano Polino¹, Ana Pros¹, Tarek Carlos Salman-Monte¹, Jordi Monfort¹, Laura Triginer²

¹Rheumatology Department, Hospital del Mar, Barcelona. ²Hospital del Mar Research Institute

³Department of Statistics and Operations Research, Autonomous University of Barcelona

Background

It has been postulated that the axis of advanced glycation end-products (AGEs) and their soluble receptor (sRAGE) could play a relevant role as inducers in the chronic inflammatory pathway in various conditions; among them, in systemic lupus erythematosus (SLE). However, some authors¹ defend that the ratio AGEs to RAGE could be a better and universal biomarker than them individually.

Objectives

As the ratios between AGEs and sRAGE have not been studied in SLE, the aim of this project is to perform an exploratory analysis of their associations with SLE characteristics.

Results

Figures 1 and 2 show the statistically significant associations between each of the ratios and SLE characteristics. We found a lower pentosidine/sRAGE ratio in patients on bDMARDs (Fig1a) and a higher one in anti-Ro52+ patients (Fig1b). Higher ratios of CEL/sRAGE (Fig1c- e) and CML/sRAGE (Fig2a-d) were associated with higher

Methods

Multiple demographic and clinical characteristics of the 122 SLE patients who signed the informed consent were recorded. Skin AGE concentrations were measured by skin autofluorescence and serum AGEs and sRAGE were measured through ELISA according to the manufacturer instructions. The relationship between the different serum

AGEs (pentosidine, CML and CEL) and sRAGE was analyzed using both an OLS regression model and a GML as all the ratios followed a non-normal distribution. All were adjusted for confounders based on previous bivariate analysis.

markers of activity and damage, while higher skin AGEs/sRAGE ratio were associated with male sex (Fig2d) and lower one with shorter disease duration (Fig2e).

Figure 1: Pentosidine/sRAGE (a-b) and CEL/sRAGE (c-e) statistically significant associations with SLE

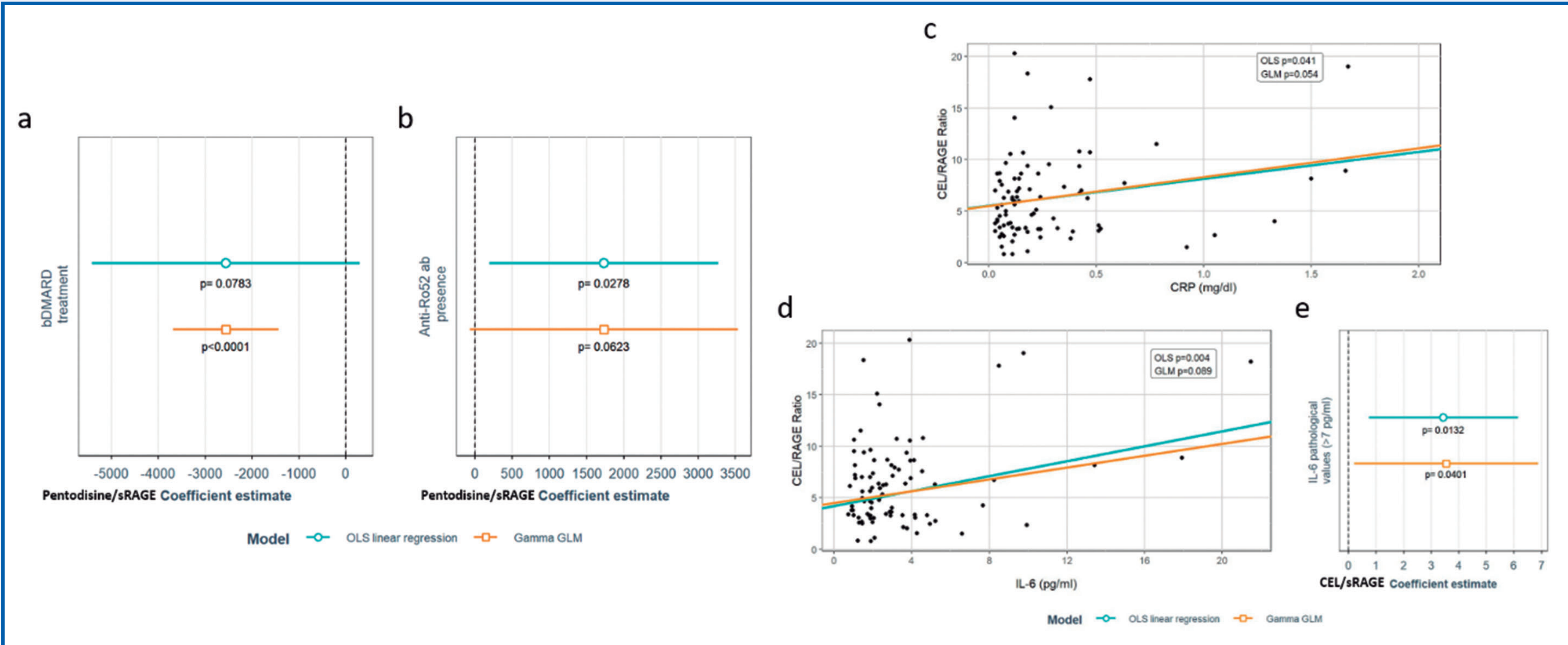
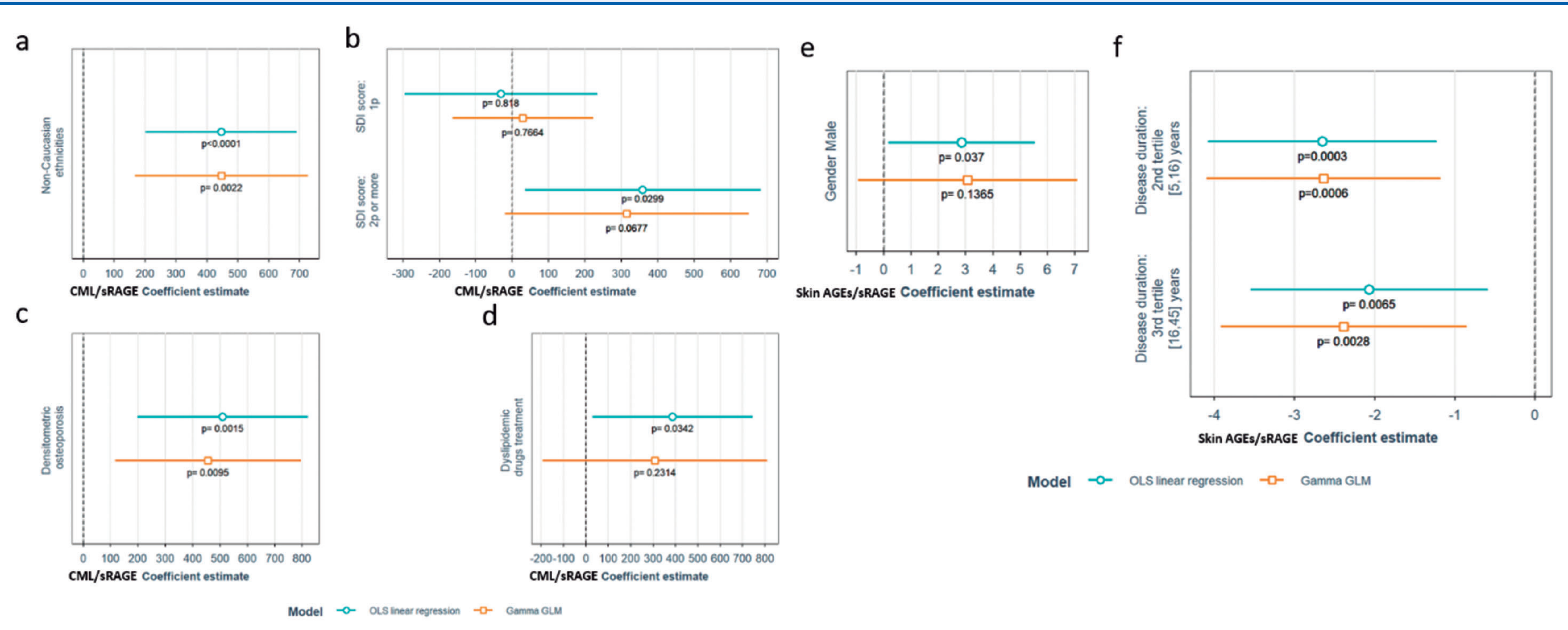


Figure 2: CML/sRAGE (a-d) and skin AGEs/sRAGE (e-f) statistically significant associations with SLE



Conclusions

Most of these associations, although preliminary and not intended for drawing conclusions, support our hypothesis that the different ratios between AGEs and sRAGE could also have implications, and maybe used as biomarkers, related to patients phenotypes, response to treatment, activity and prognosis. However, these observations should be further explored.

References

1. Prasad K, Dhar I, Caspar-Bell G. Role of advanced glycation end products and its receptors in the pathogenesis of cigarette smoke- induced cardiovascular disease. *Int J Angiol.* 2014;24(2):75–80.