



POSTER PRESENTATION

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# Plasma osteopontin as a marker for future organ damage in pediatric systemic lupus erythematosus

Ornella J Rullo<sup>2\*</sup>, Jennifer MP Woo<sup>2</sup>, Alice DC Hoftman<sup>2</sup>, Miriam F Parsa<sup>1</sup>, Gil Amariyo<sup>2</sup>, Deborah K McCurdy<sup>2</sup>, Betty P Tsao<sup>3</sup>

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## Purpose

Osteopontin (OPN) is a secreted phosphoprotein functioning in monocyte and T cell adhesion and migration. Expression of OPN in alternatively-activated macrophages has been implicated in post-inflammatory fibrosis of lung and kidney. In our previously conducted cross-sectional study of 72 pediatric SLE patients (pSLE; age of onset <18 years), increased circulating plasma OPN (cOPN) was observed in pSLE compared with healthy controls, and was associated with ACR/SLICC damage index (SDI) scores >1 ( $p = 0.0007$  and  $0.001$ , respectively), although there was no association with SLEDAI. We therefore propose that OPN is a marker for pSLE disease progression, and that increased cOPN levels may predict the development of organ damage.

## Methods

17 pSLE patients have been followed for at least 6 months with cOPN measured by ELISA at baseline and at 6 month intervals. Serum Cr, urine protein/creatinine and GFR were recorded at baseline and every 6 months. SLEDAI was recorded at 3 month intervals, and at disease flare, and SDI at every 6 months. Cumulative disease activity (adjusted-mean SLEDAI, or AMS) was calculated by finding the area under the curve of serial SLEDAI measurements. Statistical analysis was performed using Student's  $t$  test, Pearson's correlation, and Fisher's exact test.

## Results

6 of the 17 longitudinal subjects accumulated damage as per an increase in SDI during the course of the study (3 in

the renal portion, 1 peripheral vascular, 1 pulmonary hypertension, 1 avascular necrosis). 5 of the 6 patients who accumulated damage had high cOPN levels (cOPN in the top quartile) in at least 1 of the previous 2 visits prior to the increase on SDI. 80% of subjects with a high cOPN had an increase in SDI, whereas only 11% of subjects with a cOPN in the bottom three quartiles had an increase in SDI, indicating an increase in SDI was more likely in those patients with a preceding high cOPN ( $p = 0.01$ ). Cumulative disease activity (AMS) was associated with an increase in SDI scores ( $p < 0.0001$ ) in this cohort, and was correlated with cOPN levels (Spearman  $r = 0.46$ ,  $p = 0.02$ ).

## Conclusion

cOPN is correlated with cumulative disease activity and may be a potential marker for future organ damage in pSLE. The rapid and/or early accrual of organ damage in patients with SLE has been associated with poorer outcomes, therefore a marker of risk for irreversible damage could be a critical component for guiding treatment decisions in pSLE.

## Disclosure

Ornella J. Rullo: None; Jennifer M.P. Woo: None; Alice D.C. Hoftman: None; Miriam F. Parsa: None; Gil Amariyo: None; Deborah K. McCurdy: None; Betty P. Tsao: None.

## Author details

<sup>1</sup>UCLA, Manhattan Beach, CA, USA. <sup>2</sup>UCLA, Los Angeles, CA, USA. <sup>3</sup>UCLA School of Medicine, Los Angeles, CA, USA.

<sup>2</sup>UCLA, Los Angeles, CA, USA

Full list of author information is available at the end of the article

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