Introduction

- S100A8 and S100A9 are two calcium-binding proteins that belong to the S100 family, and those are expressed by infiltrating monocytes and neutrophils under inflammatory conditions.

- S100A8/A9 has been suggested as biomarkers of disease activity in patients with systemic juvenile idiopathic arthritis or adult-onset Still's disease (AOSD).

Objective

- We investigated the clinical significance and the pathogenic role of this marker in AOSD.

Methods

- Serum samples were prospectively collected from 20 active AOSD patients, 20 rheumatoid arthritis (RA), and 20 healthy controls (HC).

- Serum S100A8/A9 levels were measured using commercial ELISA kits (Buhlmann Laboratories, Schonbuch, Switzerland) according to the manufacturer’s protocol.

- Peripheral blood mononuclear cells (PBMC) from active AOSD and HC were evaluated for interleukin-1β (IL-1β) release, and in vitro study with PBMC and human acute monocytic leukemia (THP-1) cell line was done for cell signal of S100A9 or S100A8/A9.

- S100A8/A9 expression levels in biopsy specimens obtained from 26 AOSD patients with skin rashes and 8 AOSD with lymphadenopathy were investigated via immunohistochemistry.

- Each marker was recorded as the numbers of positive inflammatory cells divided by the numbers of total inflammatory cells, then expressed as a graded on a scale from 1 to 3: 1,1-33%; 2, 34-66%; 3, 67-100%.

Conclusions

- We found higher levels of S100A8/A9 in the serum and upon immunohistochemical staining of pathological skin tissue from patients with active AOSD.

- We also found that S100A8/A9 correlated with several inflammatory markers and disease activity markers, and that this correlated with IL-1β production.

- These findings improve our understanding of the role played by S100A8/A9 in the immunopathogenesis of AOSD, and may also suggest novel diagnostic or therapeutic strategies.