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# Evaluation of the expression of red blood cell CD36, interleukin-6 and interleukin-8 in sickle cell anemia pediatric patients

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ABSTRACT

Sickle cell anemia (SCA) is a complex multisystem disease characterized by acute and chronic inflammation, with alterations in inflammatory cytokines and adhesion molecules.

This case-control study was carried out to assess the levels of CD36, immature reticulocytes, interleukin (IL)-6 and IL8 in SCA patients (in crisis and the steady state) and healthy controls. It included 90 children who were 2–18 years old; 60 with SCA and 30 healthy controls. Complete blood count, total reticulocyte count, reticulocyte subpopulations, immature reticulocyte fraction (IRF), percentage of CD36-positive red blood cells (RBCs), IL-6 and IL-8 levels were evaluated.

The total white blood cell (WBC) and neutrophil counts, CD36-positive RBCs percentage, IRF, IL-6 and IL-8 levels were significantly higher in crises than in the steady state ($P < 0.05$). We also found that patients with SCA had significantly higher reticulocyte, WBC and neutrophil counts, fetal hemoglobin, CD36-positive RBCs percentage, IRF, and IL-6 and IL-8 levels than healthy children ($P < 0.05$). A significant positive linear correlation was reported between IL-6 and neutrophils during crises (Spearman correlation coefficient = 0.397, $P = 0.03$). These findings suggest that the levels of adhesion molecules and inflammatory markers and IRF, as evidenced by CD36-positive RBCs, IL-6 and IL-8, are elevated in SCA patients, both during steady state and crises, although these elevations are more marked during crises. Further knowledge about these cytokines and adhesion molecules will help in understanding the pathogenesis and improve therapy of SCA.