Determining the relationship between classical and non-classical monocyte ratios with clinical signs of systemic sclerosis

Abstract

Background: Systemic sclerosis is a systemic disorder with unknown causes that is characterized by thickening of the skin due to accumulation of connective tissue and involvement of visceral organs including the gastrointestinal tract, lungs, heart and kidneys. The triad pathogenesis of the disease includes vascular injury, innate and adaptive autoimmune system as well as generalized fibrosis.

Aim: In this study, the relationship between the ratio of classical and non-classical monocytes, known as inflammatory cells, was determined and is its association with the clinical signs of systemic sclerosis diseases were evaluated.

Materials and Methods: In this case-control study, 26 patients with scleroderma who referred to the rheumatology clinic of Imam Khomeini Hospital and the diagnosis of scleroderma was confirmed and 20 healthy controls, after obtaining consent and completing a designed questionnaire, blood sample Obtained. After cell isolation, they were studied by flow cytometry. Data were analyzed using dispersion and chi-square tests in SPSS statistical software.

Results: The mean age of participants in the case and control groups was 49.85 and 49.42 years, respectively, and most participants in both groups were women and more than 88.5% were housewives. 26.9% of patients had abnormal SPAP, 50% of patients had pulmonary fibrosis, 35.8% of patients had upper gastrointestinal symptoms and 19.2% had lower gastrointestinal symptoms. The results of the present study showed that classical, non-classical and intermediate monocytes in the case group were 3957.26 ± 2677.58, 571.11± 489.70 and 442.88±41.95 and in the control group these ratios were 983.93 ± 17.97, 1941.20 ± 121.33, and 26.01 ± 23.50 respectively. The results showed a significant difference in terms of classical, non-classical and intermediate ratios between case and control groups ($p < 0.001$). According to the results, the ratio of classical monocytes to non-classical monocytes in the group of patients with systemic sclerosis compared to the healthy control group showed a significant decrease ($P = 0.01$). There was no significant correlation between the ratio of classical monocytes to non-classical monocytes with patients' clinical symptoms ($p > 0.05$).

Conclusion: Since the ratio of monocytes had a significant relationship in the patient group compared to the control group indicates the role of these cells in the pathogenesis of the disease. Therefore, it is suggested that we may be able to help treat the disease by inhibiting these cells in the early stages of the disease.

Keywords: Systemic sclerosis, Classical monocyte, Nonclassical monocyte