ABSTRACT

Purpose: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease characterized by altered T-cell population homeostasis, including Th1 and Th17 populations. MSCs-induced i-Treg in SLE milieu can suppress Th17 cell populations; however, Th1 cell population status as a response to the Th17 decrease remains unclear. Therefore, to improve SLE flare by suppressing Th17 via MCSs administration and constantly controlling Th1 under normal level is a crucial point. This study aimed to investigate the role of MSCs in suppressing Th17 cell populations and controlling Th1 to a normal level by in vitro transwell-culturing MSCs with PBMC from SLE patients.

Methods: This study used a post-test control group design. MSCs were obtained from human umbilical cord tissue and characterized according to their surface antigen expression and multilineage differentiation capacities. PBMCs isolated from SLE patients were divided into five groups: sham, control, and three treatment groups. The treatment groups were treated by transwell-culturing MSCs to PBMCs with a ratio of 1:1, 1:25, and 1:50 for 72 hours incubation. Th1 and Th17 cells were analyzed by flow cytometry.

Results: This study showed that there was no significance difference of the percentages of Th1 cells on all treatment group. On the other hand, the percentages of Th17 was significantly decreased on T1 group. Interestingly, there was also significant decrease of Th1-like Th17 cells population on T1 group.

Conclusion: MSCs may suppress Th17 and control Th1 to a normal level by in vitro transwell-culturing MSCs with PBMC from SLE.

Keywords: MSCs, Th1, Th17, SLE