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THE QUANTITATIVE ANALYSIS OF PERIPHERAL BLOOD FOXP3-EXPRESSING REGULATORY T CELLS IN SYSTEMIC LUPUS ERYTHEMATOSUS AND RHEUMATOID ARTHRITIS PATIENTS

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BACKGROUND/AIMS: The naturally occurring $CD4^+CD25^+$ regulatory T (Treg) cells play an important role in maintaining immune tolerance. We therefore tested the hypothesis that Treg cell deficiency contributes to the pathogenesis of systemic lupus erythematosus (SLE) or rheumatoid arthritis (RA).

METHODS: Flow cytometric analysis was performed to identify peripheral blood $FoxP3^+$ Treg cells in normal controls and SLE and RA patients. The cell frequencies among $CD4^+$ T cells and absolute counts of $FoxP3^+$ Treg cells were determined for the statistical comparison between normal and disease groups, and their correlation with disease activities in SLE patients was evaluated. The FoxP3 transcript levels in PBMCs also were determined.

RESULTS: The $FoxP3^+$ Treg cell frequencies were increased in SLE patients and positively correlated with lupus disease activity. However, the absolute $FoxP3^+$ Treg cell counts in SLE patients were comparable with those in normal controls, except that a $CD4^+CD25^-FoxP3^+$ cell population was more prominently recognized in SLE patients. The frequencies and absolute counts of $FoxP3^+$ Treg cells in RA patients were equivalent to those in normal controls. Furthermore, the FoxP3 transcript levels in PBMCs appear to be similar among normal, SLE and RA groups.

DISCUSSION/CONCLUSIONS: $FoxP3^+$ Treg cell deficiency was not observed in SLE and RA patients. The data suggest that Treg cells in SLE patients possibly provide negative feedback on autoimmunity. The quantitative analysis of peripheral blood $FoxP3^+$ Treg cells may provide valuable information on disease diagnosis and activity evaluation in SLE patients.

Key words: Systemic lupus erythematosus (SLE), Rheumatoid arthritis (RA), CD4+CD25+ regulatory T cells, FoxP3