CD4+CD25+ regulatory T cells suppress immune response to murine cytomegalovirus infection of mouse embryo fibroblasts

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Background: To explore the effect of Tregs on MCMV infection, and its possible mechanism.

Methods: A co-culture system of T cells and MCMV infected MEFs in the presence/absence of Tregs was established. The ratios of T cell subsets were analyzed by flow cytometry; the production of IFN-γ and IL-4 in supernatants was detected with double-antibody sandwich ELISA; the viral load of whole culture was quantified by plaque assay. The levels of TGF-β1 mRNA were determined by RT-PCR assay. The effects of TGF-β1 and IL-10 on Foxp3 protein expression and Treg ratio were determined by Western blot and flow cytometry, respectively.

Results: After co-culture for 3 days, the Treg ratio and Foxp3 mRNA level were both higher than those of pre-co-culture. Addition of Tregs to the co-culture systems significantly increased the viral loads in a dose-dependent manner. In the absence of Tregs, after co-culture of TdepTreg with MEF-MCMV for 3 days, MCMV dramatically promoted effector T cell subsets proliferation. When homologous Tregs were added into the co-cultures, the numbers of TC1, TC2 and Th1 were suppressed with increased ratio for Tregs. And the levels of IL-10 and TGF-β1 increased accordingly. Blockade of TGF-β1 partly reduced the Foxp3 protein level and Treg ratio.

Conclusions: MCMV infection could induce Treg expansion in vitro, and Treg might suppress effector T cell subgroups differentiation and functions with secreting IL-10 and TGF-β1.

The characteristic of T cell subsets of hand, foot and mouth disease in part of Shandong in 2008

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Objective: To approach the value of T cell subsets of hand, foot and mouth disease (HFMD) in judgement pathogenetic condition and evaluation curative effect by analyzing the characteristic of T cell subsets of HFMD in part of Shandong in 2008.

Method: 140 cases of HFMD patients and 166 normal children for register in nursery anti-coagulate blood were collected. T lymphocyte subsets were detected by flowcytometry. It was compared with different age group of the characteristic of T cell subsets of HFMD, and analyzed the change of T lymphocyte subsets of patients with serious brainstem encephalitis.

Results: Compared with those of normal children, CD3+, CD4+ and CD8+ T cell opposite percentage of HFMD patients decreased obviously. Both CD4+ and CD8+ T cell of different age group of patients also lessened notably (P<0.01), and the amounts of CD8+ T cell were not decreased markedly (P>0.05), except for the age group from 1 year 7 months to 2 years (P<0.05). CD3+ T cells, CD4+ T cells, and CD8+ T cells were depleted in patients with encephalitis, and the amounts of T8 cells decreased markedly. The opposite percentage T lymphocyte in patients with serious brainstem encephalitis was lower than without encephalitis.

Conclusion: T lymphocyte of HFMD were more seriously damaged than normal children. And the amount of T lymphocytic subsets were lower in HFMD with encephalitis than those patients without encephalitis. And T lymphocytic subsets can be see a adjunctive index for judgement pathogenetic condition and evaluation curative effect in HFMD.