

DIFFERENTIAL PATTERNS OF CYCLOSPORINE A-INDUCED INHIBITION OF HUMORAL AND CELLULAR IMMUNE RESPONSES TO SHEEP ERYTHROCYTES IN MICE

Michał Zimecki[#], Zbigniew Wieczorek

Department of Experimental Therapy, Institute of Immunology and Experimental Therapy,
Polish Academy of Sciences, Rudolfa Weigla 12, PL 53-114 Wrocław, Poland

Differential patterns of cyclosporine A-induced inhibition of humoral and cellular immune responses to sheep erythrocytes in mice. M. ZIMECKI, Z. WIECZOREK. Pol. J. Pharmacol., 2001, 53, 495–500.

In this communication we reveal differential inhibitory effects of cyclosporine A (CsA) on generation of the cellular and humoral immune responses to sheep erythrocytes (SRBC) in mice. For the analysis of the regulatory effects of CsA, we analyzed the results of 45 separate experiments performed in recent years where CsA served as a reference drug for our research on various immunoregulatory compounds. The humoral immune response was determined as the number of plaque-forming cells (PFC), and the delayed type hypersensitivity (DTH) was measured by foot pad swelling. We demonstrated that treatment of mice intraperitoneally (*ip*) with a dose of 100 µg of CsA/mouse, 2 h after immunization resulted in a differential pattern of inhibition of these two types of the immune response depending on the magnitude of the response in a given experiment. In the case of the antibody response (mean number of PFC 2312 median 2200), high PFC numbers were inhibited stronger than low ones; mean values in respective quarters and inhibitory actions were the following: 1552 (42.3%), 2049 (52.4%), 2441 (61.2%) and 3042 (62.5%). In consequence, high, medium and low responses were down-regulated to approximately the same level. Another inhibitory pattern was observed in the DTH model (mean 10.35 units, median 10.8 units), i.e. low DTH responses were suppressed more strongly than high ones. The mean DTH responses and suppression effects in respective quarters were: 7.4 (58.2%), 10.1 (52.7%), 11.8 (51.8%) and 13.1 (38.8%). As the result of such CsA action, the DTH response profile was parallel to that of the control response. In summary, the humoral immune response was down-regulated by CsA proportionally to the immune response observed in control mice, while DTH response was inversely proportional. The possible mechanisms of the observed regulatory CsA actions are discussed.

Key words: *cyclosporine A, mice, antibody response, delayed type hypersensitivity, sheep red blood cells*

[#] *correspondence*; e-mail: zimecki@immuno.iitd.pan.wroc.pl