

Lymphocyte subpopulations dynamics in a model of cytotoxic stress caused by R(G)-DHAP

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Background

Antitumor effect in patients with non-Hodgkin's lymphomas (NHL) receiving chemotherapy is achieved as a result of the synergy of cytotoxic effects of chemotherapy and antitumor autoimmunity. However, chemotherapeutic depletion of lymphoid cells may impair the effectiveness of the antitumor immune response. The dynamics of lymphocyte subpopulations during R(G)-DHAP therapy has not been previously analyzed and are of interest.

Objective

To analyze changes in lymphocyte fractions and determination of the time period for the restoration of T-cell and NK-cell immunity.

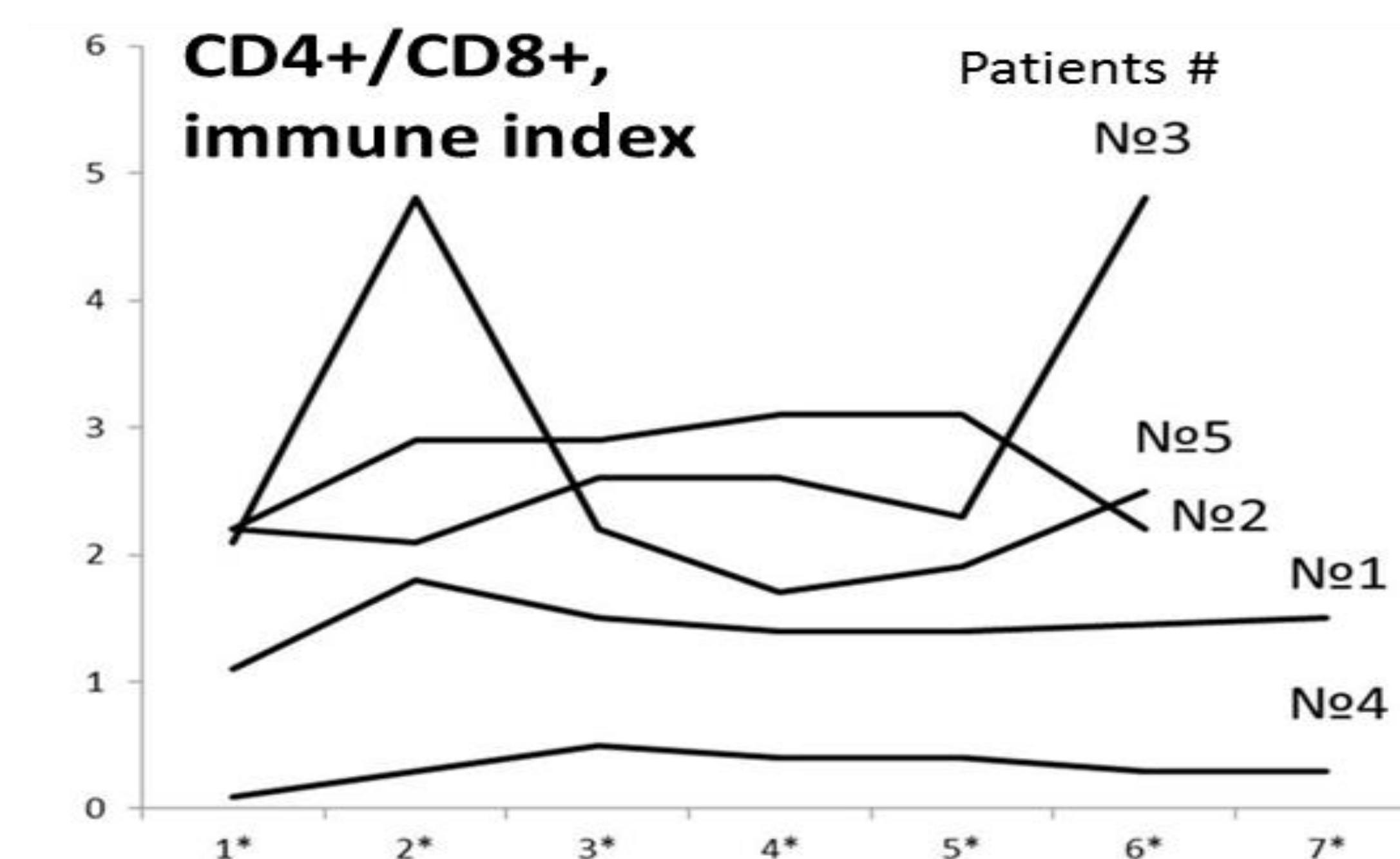
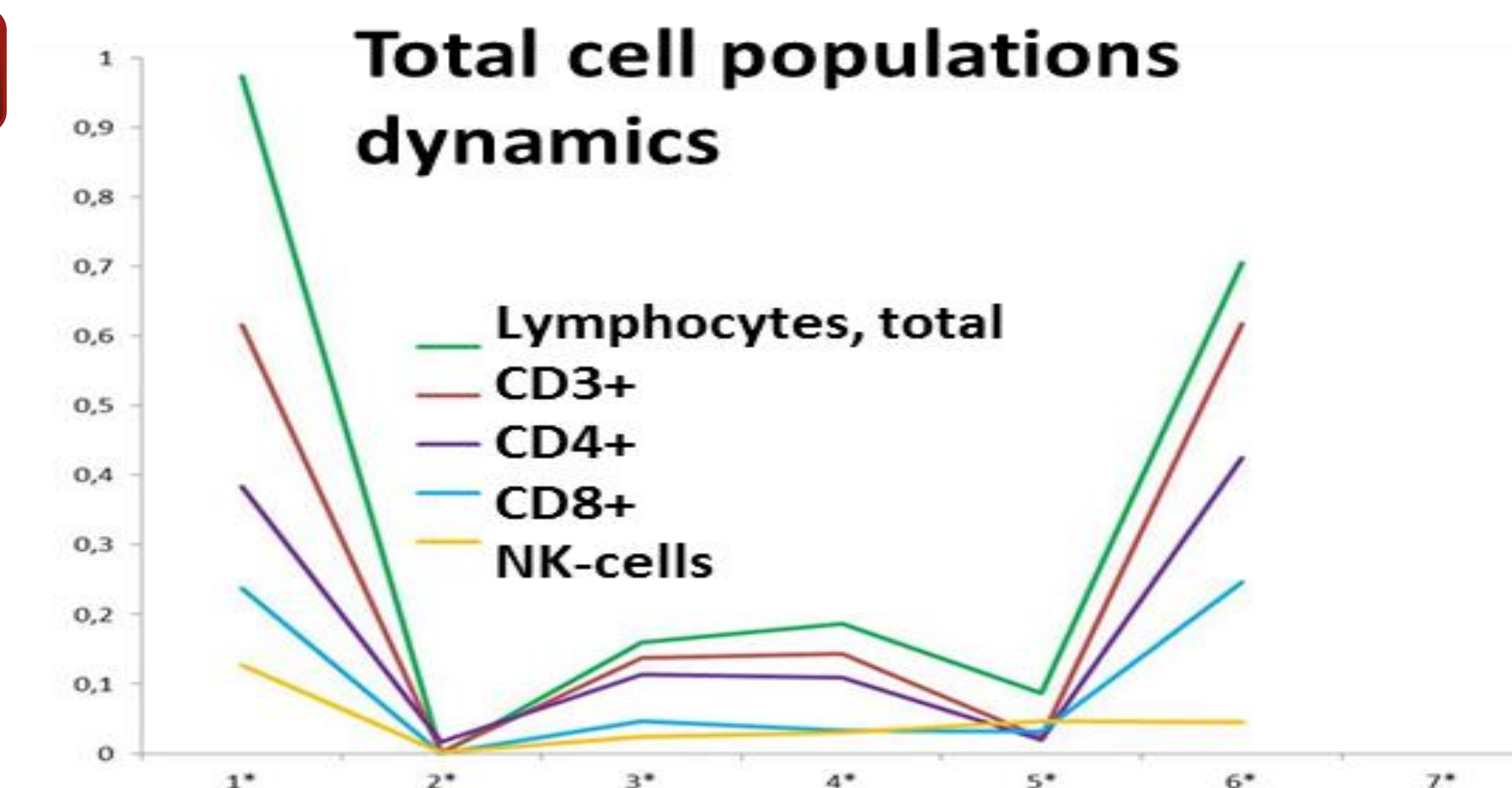
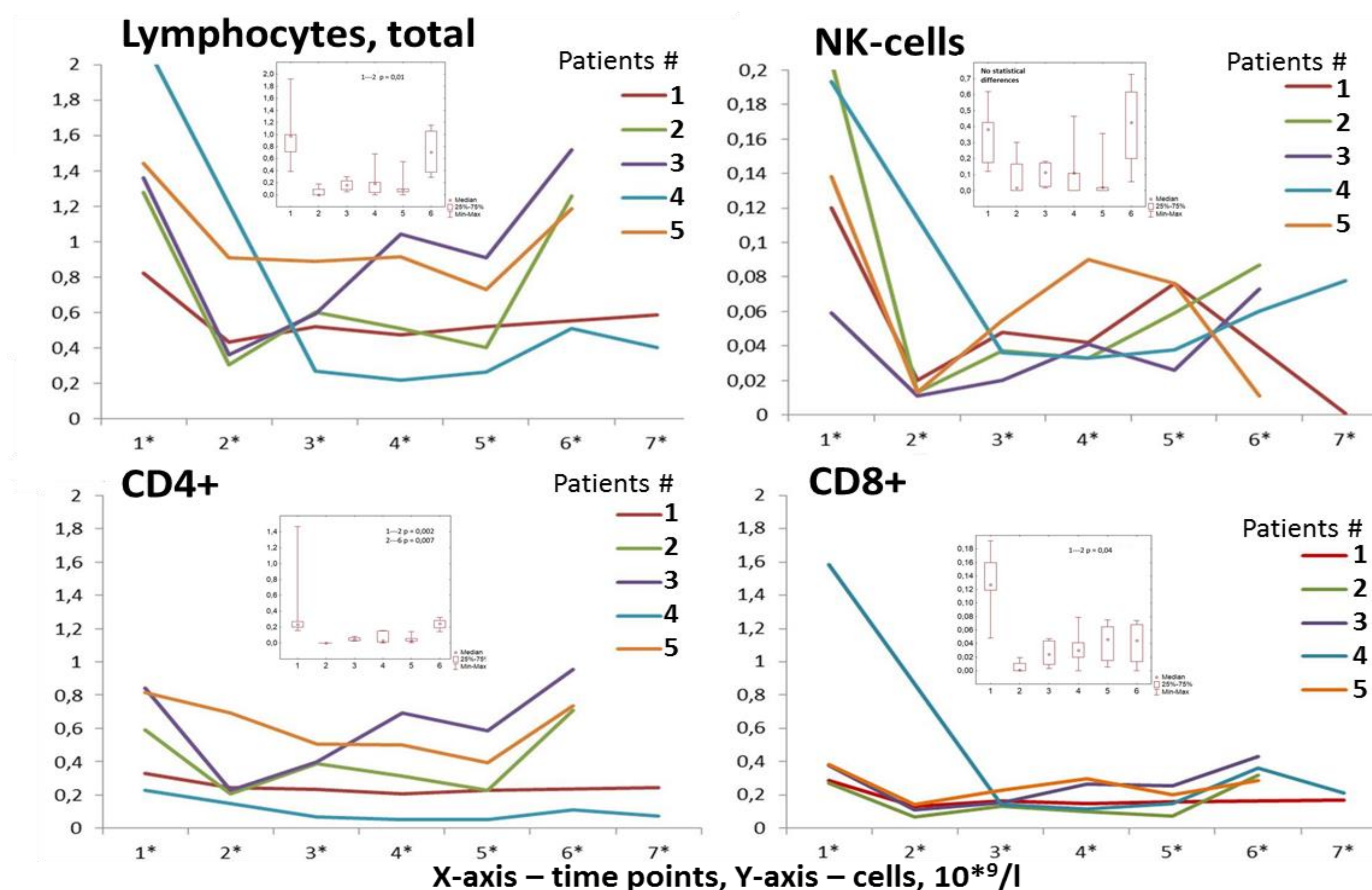
Materials & Methods

DESIGN: The study included 5 patients with NHL. Lymphocyte subpopulations were examined at 6-7 time points: before treatment, on the 1st, 5th, 8th, 11th, 16th days of the inter-course break, and before the start of the next cycle.

SETTING: The analysis of the subpopulations of lymphocytes was performed using the method of flow cytometry with a panel of antibodies for lymphocytes (CD45+), T-helper cells (CD3+CD4+), cytotoxic T-cells (CD3+CD8+), NK cells (CD3-CD56+) and B-lymphocytes (CD19+).

RESULTS

The number of lymphocytes critically decreases on the 1st day of the break after (R/G)-DHAP, gradually increasing. CD8+ cells are most sensitive to chemotherapy. The number of CD4+ lymphocytes is characterized by the formation of a second minimum on the 10th-12th day of the inter-course break, while the dynamics of effector cytotoxic lymphocytes and NK cells is more linear and gradually increases. By day 16th, the absolute number of lymphocytes is restored or approaching the level before the start of chemotherapy.



Conclusions

The parameters of the dynamics of lymphocytes under cytotoxic stress can be taken into account in the case of combined use of chemotherapy and immunotherapy.

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