

THE EFFECT OF IMMUNOSUPPRESSIVE THERAPY ON T-CELL IMMUNITY IN PATIENTS WITH KIDNEY TRANSPLANTATION

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Objective: to study the effect of immunosuppressive therapy on $CD3^+CD4^+CD25^+$ (T-helper activated) and $CD3^+CD4^+CD25^{high}CD127^{low}$ (T-regulatory) lymphocytes in the recipients of the renal allograft.

Materials and Methods. The quantity of $CD3^+CD4^+CD25^+$ and $CD3^+CD4^+CD25^{high}CD127^{low}$ was determined in the peripheral blood of 43 recipients of the renal allograft with normal renal function by flow cytometry method on day 0, 1, 3, 10, 30, 90, 180, 360. All the patients received induction therapy with anti-CD25 monoclonal antibodies and three-component immunosuppressive therapy, including calcineurin inhibitors, antiproliferative drugs (mycophenolate or azathioprine), and corticosteroids.

Results. There wasn't detected any significant differences of the quantity of $CD3^+CD4^+CD25^+$ and $CD3^+CD4^+CD25^{high}CD127^{low}$ lymphocyte subpopulation in the group in the group of patients before kidney transplantation and in the group of healthy patients. On the first day after kidney transplantation the level of $CD3^+CD4^+CD25^+$ and $CD3^+CD4^+CD25^{high}CD127^{low}$ lymphocyte subpopulation was significantly decreased. The maximum decrease of quantity of $CD3^+CD4^+CD25^+$ cells was detected on the 10th day of follow-up. ($p_{0,10}$ Wilcoxon Matched Pairs Test = 0,018; $Z=2,38$) with the subsequent progressive growth of this subpopulation, and the decrease from the 3rd to the 10th day was no longer significant ($p_{10,30}$ Wilcoxon Matched Pairs Test = 0,332; $Z=0,986$). In addition, the tendency to decrease in $CD3 + CD4 + CD25 + highCD127 + low$ persisted for a longer period (up to 30 days). On the 90th day after the surgery the quantity of $CD3^+CD4^+CD25^+$ ($p_{0,90}$ Wilcoxon Matched Pairs Test = 0,600, $Z=0,524$) and $CD3^+CD4^+CD25^{high}CD127^{low}$ ($p_{0,90}$ Wilcoxon Matched Pairs Test = 0,248, $Z=1,153$) didn't differ from the level before transplantation. On the 360th day of the follow-up, there was detected a decrease in T-regulatory lymphocytes compared to the group of healthy patients (p Mann-Whitney U Test = 0,038; $Z=-2,071$).

Conclusion. The duration of the almost complete blocking of the IL-2 receptor on lymphocytes in patients after kidney transplantation receiving immunosuppressive therapy induction therapy with anti-CD25 monoclonal antibodies and three-component therapy with calcineurin inhibitors, antiproliferative drugs (mycophenolate or azathioprine) and corticosteroids is about 3 months. This should be taken into account when interpreting the results of an immunological examination of patients of this category. The quantity decrease in $CD3^+CD4^+CD25^{high}CD127^{low}$ cells at the 12th month of follow-up may be one of the effects of calcineurin

inhibitors and it can adversely affect the formation and maintenance of immunological tolerance in the posttransplant period.

Key Words: *kidney transplantation, lymphocyte subpopulation, CD25, T-regulatory lymphocytes.*