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T-Cell count and antilymphocyte globulin therapy

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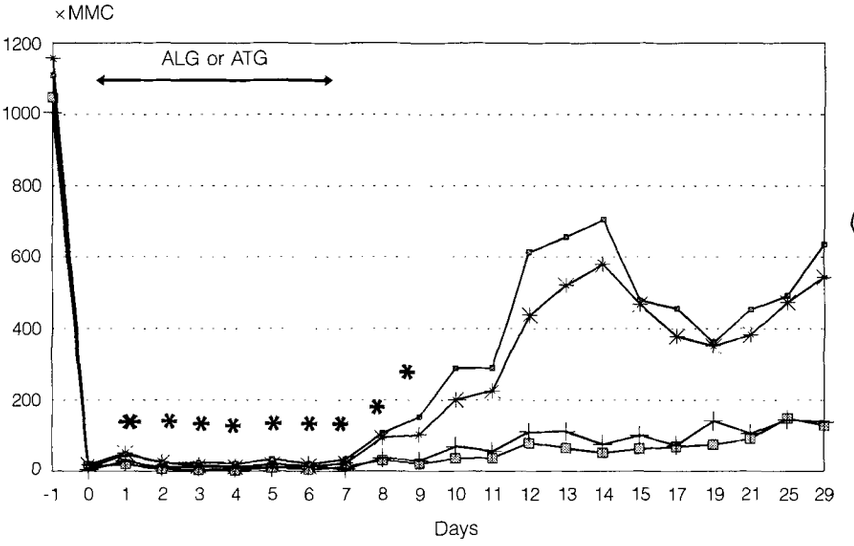
Sir: We read Dr. Clark's article [1], which reports the experience of ATG administration according to the absolute T lymphocyte count during therapy for steroid-resistant rejection. Previously, we published a study [2] on the prophylactic use of rabbit ATG (Thymoglobuline-Merieux, Lyon, France) after heart transplantation, monitoring the absolute T lymphocyte count to adjust ATG dosage. All data were compared with prophylactic use of horse ALG (Lymphoglobuline-Merieux, Lyon, France) to verify the different degree of immunosuppression achieved with these two regimens. CD2 +, CD3 +, CD4 +, CD8 + (total and subsets of T lymphocytes, respectively) and CD20 + (B lymphocytes) were identified by flow cytometric analysis (EPICS C Coulter, USA). Daily ATG and ALG dosage was determined on the basis of the absolute count of CD2 + and CD3 + cells (range 0–50 cells/μl).

As shown in Fig. 1, the behavior and recovery of total T cells were different after prophylactic ALG or ATG. In fact, prophylactic ATG induced a statistically greater and longer lasting lymphocytopenia with a lower absolute T cell count. Of the lymphocyte subsets, both CD4 + and CD8 + showed significantly similar behavior. This phenomenon occurred in the first 3 months. The overall incidence of moderate degree rejection episodes in the first 3 months was less in patients receiving prophylactic ATG than in those in the ALG group ($P = 0.01$). Also, the incidence of infectious episodes was lower in ATG-treated patients ($P = 0.02$), confirming that antirejection treatment is a risk factor for infections. Both ALG and ATG doses were reduced, based on the absolute T lymphocyte count, but the ALG group presented an increased incidence of rejection after the end of therapy, confirming the higher immunosuppressive potency of ATG.

Moreover, although the T lymphocyte count remains an important index in management globulin therapy, other factors should be considered in clinical use of the different commercially available antilymphocyte globulins. They include the capacity to deplete lymphoid organs, to act on T-lymphocyte subsets, and to influence immune system response. In fact, after prophylactic ATG, our patients showed a marked, lasting reduction in T helper/inducer cells with respect to ALG therapy, which reduces the possibility of activating a number of mechanisms affecting the immune response that might cause destruction of the allograft [3].

Fig. 1 Behavior of absolute values of CD2 + and CD3 + lymphocytes after ALG or ATG therapy. –□–, ALG/CD3 +; +, ATG/CD3 +; ✱, ALG/CD2 +; –▨–, ATG/CD2 +; 0, Day of transplantation; * not significant; ★ MMC, absolute value



References

1. Clark KR, Forsythe JLR, Shenton BK, Lennard TWJ, Proud G, Taylor RMR (1993) Administration of ATG according to the absolute T lymphocyte count during therapy for steroid-resistant rejection. Transpl Int 6: 18–21
2. Ippoliti G, Rovati B, Graffigna A, Minoli L, Origlia C, Di Franco L, Martinelli L, Minzioni G, Intili I, Ascari E, Viganò M (1989) Prophylactic use of rabbit ATG vs horse ALG in heart transplanted patients under Sandimmun (CyA) therapy: clinical and immunological effects. Clin Transpl 3: 204–208
3. Mason DW, Morris PJ (1986) Effector mechanisms in allograft rejection. Ann Rev Immunol 4: 119

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