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Immunological Response to Influenza Virus Vaccine in B-Cell Chronic Lymphocytic Leukaemia Patients

We read with interest the report by Gribabis et al. [1] concerning the clinical utility of influenza virus vaccine in B-cell chronic lymphocytic leukaemia (B-CLL) patients. We also investigated the effects of influenza virus immunization in 30 B-CLL patients in different stages of disease. Nine patients were in stage A, 12 stage B and 9 stage C [2].

The patients (22 male and 8 female, with a median age of 69 years) and 10 healthy, sex- and age-matched subjects were vaccinated with the inactivated Inflexal Berna vaccine (Istituto Sieroterapico e Vaccinogeno Svizzero Berna, Berne, Switzerland) containing the following antigens: A/Beijing/32/92 (H3N2), A/Singapore/6/86 (H1N1) and B/Panama/45/90. Patients were vaccinated twice (on days 1 and 31); serum was collected and stored at -80°C before the first immunization and after 30 and 60 days. The patients were not treated with chemotherapy or steroids for at least 4 weeks.

Antibody production was assessed by the haemagglutination-inhibition technique, and a titre $>1:10$ was considered as a protective response. A significant antibody response was obtained in 16 out of 30 patients (53%) and in all the controls. The frequency of specific antibody, for the three antigens used, was similar for each group. Interestingly, 5 out of 16 responders showed a protective titre only after the second immunization and in 8 patients we observed an increase in antibody titre after the second inoculation.

In agreement with the results published by Gribabis et al. [1], we found a significant difference in the response when we compared patients with normal or low IgG levels ($1,016 \pm 495$ vs. 619 ± 258 mg/dl; $p < 0.05$). Moreover, we observed a correlation between the response and the stage of disease. For this analysis, we combined the patients in the low stages and in the intermediate-high stages. We found a statistically significant difference with the staging system of Binet et al. [2] (9/9 patients in stage A vs. 7/21 in stages B and C; $p < 0.05$), but not with the system of Rai et al. [3] (10/13 patients in stage 0-I vs. 6/17 in stage II-IV; $p = 0.058$).

As Gribabis et al. [1], we observed no correlation with the pattern of bone marrow infiltration, lymphocyte doubling time, or absolute lymphocyte count. Furthermore, we did not find any significant differences when we compared the response with age, LDH and CD23-soluble serum levels, absolute count of CD3+, CD4+, CD8+ and CD19+/CD5+ lymphocytes.

Our study confirms the efficacy of immunization with inactivated influenza virus vaccine in B-CLL patients in the early stages of the disease and with normal immunoglobulin levels. However, the low rate of responses obtained in advanced stages (35%), or with low Ig levels, suggests that further studies to identify other predictive factors, associated with better immunization methods, in this group of patients are needed.

References

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