

Total Serum IgE Concentration in Splenectomized Patients after Abdominal Trauma

Several studies have shown that splenectomy is associated with changes in humoral immunity including raised serum IgA and IgG concentrations (5, 6, 9). Moreover, little is known about the effect of splenectomy on the seric total IgE level. Okumura and Tada found that splenectomy causes a significant enhancement of IgE formation in rats and that passive transfer of splenocytes to splenectomized rats brings about total or partial recovery of normal total IgE levels (3). These results suggest that splenectomized patients could show increased IgE levels.

In our study, a group of 100 adult patients who had undergone splenectomy because of abdominal trauma were examined. The subjects presented no associated diseases and the minimum asplenia period was one year.

The serum concentration of A, M and G immunoglobulins was determined by radial immunodiffusion (Kallestad). The total seric IgE concentration was measured by enzyme immunoassay (PRIST, Pharmacia). The results were compared

with those observed in 40 healthy individuals using the Mann-Whitney test. Because the great asymmetry observed in IgE values in both control and patient groups, geometric mean was used.

Table I shows the serum immunoglobulin concentrations. The increase observed in the serum concentrations of IgA and IgG is well known and coincide with the values reported by other authors (5, 6, 9). However, significant increase in total IgE concentration was observed ($p < 0.001$); the concentration of IgE in 40 % of the patients was over 108 UI/ml, which is the maximum value established for the healthy population in Spain (1) and the highest value observed in our patients was 6900 UI/ml.

The serum concentration increase of total IgE has not been described in splenectomized patients without associated disease. VIERUCCI *et al.* observed this increase in splenectomized patients with β -thalassaemia and hepatitis B (7), diseases which in themselves can induce increased synthesis of IgE (2).

Table I. Serum concentrations of immunoglobulins A, M, G (mg/dl) and E (UI/ml).
Values are arithmetic mean \pm standard deviation and, in parenthesis, geometric mean. * $p < 0.01$
** $p < 0.001$.

	A	M	G	E
Controls (N=40)	162 \pm 82	101 \pm 36	1084 \pm 220	44 \pm 51 (22.3)
Patients (N=100)	264 \pm 131*	104 \pm 55	1205 \pm 261*	305 \pm 826 (83.2)**

The rise in IgE also showed no relationship with a patient having received blood transfusions or with the frequency of these transfusions, although these factors are known to raise IgE levels (4).

A considerable increase of IgE in the serum of splenectomized patients after abdominal trauma without any evidence of previous immunological or haematological abnormalities has been observed. This result indicates that the spleen plays a role in regulating total IgE level.

Key words: IgE, Splenectomy, Abdominal Trauma.

Palabras clave: IgE, Trauma abdominal, Esplenectomía.

References

1. Campos, A., Romar, A., Basomba, A. *et al.*: *Allergol. Immunopathol.*, 9, 495-500, 1981.
2. Levo Y. and Shalit, M.: *Ann. All.*, 47, 456-459, 1981.
3. Okumura, K. and Tada, T.: *J. Immunol.*, 106, 1019-1025, 1971.
4. Ropars, C., Cartron, J. P., Bay, P. and Salmon, C.: *Vox Sang.*, 37, 139-144, 1979.
5. Schumacker, M. J.: *Arch. Dis. Child.*, 45, 409-415, 1970.
6. Sustiel, A. and Rocklin, R.: *Clin. Exp. All.*, 19, 11-18, 1989.
7. Vierucci, A., De Martino, M., Rossi, E. *et al.*: *Clin. Exp. Immunol.*, 58, 119-205, 1984.
8. Westerhausen, M., Wörsdörfer, O., Gessner, U. *et al.*: *Blut*, 43, 345-353, 1981.

B. Balsalobre* and F. Carbonell-Tatay¹

Departamento de Biopatología y Servicio de Cirugía¹
Hospital «La Fe»
46010 Valencia (Spain)

(Received on October 4, 1990)

* To whom all correspondence should be addressed: Departamento de Microbiología, Facultad de Medicina, 46010 Valencia (Spain).