Association between Human Lymphocyte Antigens B8, DR3 and Response to Peritonitis in Patients Undergoing Continuous Ambulatory Peritoneal Dialysis

F.		Giacchino
F.		Peyretti
G.		Piccoli

Medical Nephrology Institute of the University, Nephrology Unit and Blood Bank, San Giovanni Hospital, Turin, Italy

F. Giacchino, Medical Nephrology Institute of the University, Nephrology Unit and Blood Bank, San Giovanni Hospital, I-10154 Turin (Italy)

Dear Sir,

Peritonitis is still the major limiting factor in the development of a continuous ambulatory peritoneal dialysis (CAPD) program. Peritoneal dialysis has been found to improve some aspects of cellular immunodeficiency in uremic patients [1-3] without, however, any significant reduction in the frequency of peritonitis [4].

In order to evaluate the pathogenetic basis of peritonitis in CAPD patients, we analyzed both peripheral and peritoneal lymphocytes of 41 CAPD patients with specific monoclonal anti-T-cell antibodies [5] and heterologous anti-immunoglobulin antisera to B cells [6]; the average follow-up time was 18 months. The results are summarized in table I.

CAPD patients developed a significant absolute lymphopenia both in terms of total peripheral blood lymphocytes and of T cells measured by monoclonal antibody OKT3 ($p < 0.02$ vs. controls). T- and B-lymphocyte sub-populations did not differ from the control group. During the follow-up study OKT8-reactive cells increased significantly ($p < 0.05$) in patients who had had 2 or more peritonitis episodes (21 cases), while no change was observed in the others probably because the first group had been subjected to prolonged exposure to infectious agents.

As regards peritoneal lymphocytes, patients who had had peritonitis twice or more already showed a significant increase in OKT8-reactive cells and a decrease in B lymphocytes bearing IgA receptors (S-IgA) when they first started CAPD treatment, these results being unchanged at the following checks.

Of 9 patients positive for HLA-B8, only 1 developed peritonitis (11%), whereas 20 of 30 HLA-B8-negative patients (66%) developed peritonitis ($p < 0.005$). A similar significant association was found in relation to DR3. Of 5 patients positive for HLA-DR3 only 1 developed peritonitis (20%), whereas 13 of 18 HLA-DR3-negative patients (72%) developed peritonitis ($p < 0.05$). Our findings suggest that an HLA-linked immune response gene(s) responsible for the resistance to peritoneal infections may be active in uremic patients on

Table I. Peripheral and peritoneal lymphocytes in CAPD patients

Group I = Patients who had had 2 or more peritonitis episodes; group II = patients who had had no peritonitis episodes. * $p < 0.05$ vs. group II; ** $p < 0.02$ vs. group II.

HLA and Peritonitis in CAPD

497

CAPD. The most pronounced alterations were observed in changes of peritoneal T and B cells involved in the defense against bacteria.

References

- Giacchino, F.; Alloatti, S.; Belardi, P.; Quarello, F.; Bosticardo, G.M.; Pozzato, M.; Aprato, A.; Segoloni, G.; Piccoli, G.: Continuous ambulatory peritoneal dialysis and cellular immunity. Proc. 2nd Int. Symp. Peritoneal Dialysis, pp. 214–218 (Excerpta Medica, Amsterdam 1981).
- Touraine, J.L.; Fagalde, A.E.; Slingeneyer, A.; Navarro, J.; Gay, G.; Mion, C; Traeger, J.: Cell mediated immunity to recall antigens in hemodialysis patients lower than in patients on peritoneal dialysis (Abstract). Proc. 8th Int. Congr. Nephrol., p. 377 (1981).
- Giacchino, F.; Alloatti, S.; Belardi, P.; Coppo, R.; Giraudo, G.; Bosticardo, G.M.; Pozzato, M.; Piccoli, G.: The inhibitory influence of dialysis treatment on E-rosette formation. Trans. Am. Soc. artif. internal Organs 28:594–598 (1982).
- Giacchino, F.; Alloatti, S.; Quarello, F.; Coppo, R.; Pellerey, M.; Piccoli, G.: The influence of peritoneal dialysis on cellular immunity. Perit. Dial. Bull. 4:165–168 (1982). Reinherz, E.L.; Kung, P.C.; Goldstein, G.; Schlossman, S.F.: Separation of functional subsets of human T cells by a monoclonal antibody. Proc. natn. Acad. Sci. USA 76: 4061–4065 (1979).
- Papamichail, M.; Brown, J.C.; Holborow, E.J.: Immunoglobulins on the human lymphocytes. Lancet 7: 850–852 (1971).