Role of macrophages in tuberculous peritonitis: longitudinal follow-up of 16 continuous ambulatory peritoneal dialysis patients

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Objective: Mycobacterium tuberculosis is an intracellular pathogen susceptible to macrophage action, which also has an important role in peritoneal defense. To explore the peritoneal host defense mechanism and inflammatory process, we longitudinally followed up 16 cases of continuous ambulatory peritoneal dialysis complicated by tuberculous peritonitis over the past 9 years in Prince of Wales Hospital.

Methods: Serial peritoneal fluid cell population was monitored in 16 end-stage renal disease patients with tuberculous peritonitis.

Results: The mean age of the participants was 53 ± 15 years with a mean peritoneal dialysis duration of 34 months. Peritoneal fluid lymphocytosis was not evident and their population contributed to 10% ± 7%, 10% ± 6%, and 9% ± 8% of all leukocytes on day 1, 10, and 20 after peritonitis, respectively. Of the 16 patients, six had either failed to resume peritoneal dialysis or died of tuberculous peritonitis, and they were defined as the failure group. Compared with the success group, referring to those who could pursue peritoneal dialysis, the peritoneal fluid macrophage cell count percentage was lower in the failure group. Twenty days after tuberculous peritonitis, the peritoneal fluid macrophage cell count proportion in success and failure groups was 45% ± 11% and 10% ± 10%, respectively ($p=0.021$). However, polymorphonuclear leukocytes were more abundant in failure groups as early as 3 days after peritonitis, 93% ± 3% versus 44% ± 12% in the success group ($p=0.003$).

Conclusion: Data in this study support the hypothesis that macrophages represent an important defense mechanism of the peritoneal cavity against mycobacterial infection and possibly the major peritoneal inflammatory process. (Hong Kong J Nephrol 2002;4(2):90-94)

Key words: Leukocytes, Macrophage activation, Mycobacterium tuberculosis, Peritoneal dialysis/continuous ambulatory, Phagocytosis