Clinical Characteristics and Outcomes of Silent and Non-silent Peritonitis in Patients on Peritoneal Dialysis

Editor:

In principle, it is important that we individualize peritonitis treatment according to risk stratification. In this context, we feel that the study published by Dong *et al.* (1) is important. Although some patients may experience "silent" peritonitis (without abdominal pain or fever), treatment outcomes were not superior in those patients compared with patients who were symptomatic. We wish to report validation of those results through a retrospective analysis of our large single-center experience.

We used the diagnostic criteria set out in the International Society for Peritoneal Dialysis 2010 guidelines (2) to identify patients who presented with peritoneal dialysis (PD)-related peritonitis between 1 January 2008 and 1 January 2012. We included patients using both continuous ambulatory PD and cyclers. Outcome was characterized as treatment failure (leading to PD catheter removal or death), relapse (defined as recurrence of symptoms within 4 weeks of initial presentation, with growth of the same organism or culture-negative peritonitis), or cure (neither of the foregoing conditions).

We recorded a total of 365 episodes peritonitis in 248 patients with a mean age of 62 years (64% men, 54% with diabetes). Of those 365 episodes, we were able to retrospectively classify 339 episodes into silent ($n = 45$) and non-silent ($n = 294$) types (Table 1).

We concur that silent peritonitis is not uncommon (13.3% in our group vs 20.6% in the study from Beijing). Although we did not find any significant difference in demographic parameters between the two groups, we also found that "no growth" peritonitis was overrepresented in patients that had silent peritonitis. Interestingly, gram-negative infections were statistically significantly less frequent in the silent group in Beijing, whereas we found that gram-positive infections were less frequent. The reason for the difference is difficult to explain, although it should be noted that the p values are close to 0.05 and strictly, with Bonferroni corrections, statistical significance is doubtful. We suggest that the significant preponderance of "no growth" in the silent peritonitis group should be the interpretation of the two studies.

Importantly, we concur that differences in treatment outcomes did not reach statistical significance. The cure rate was better for patients with "silent" peritonitis (73.3% vs 62.2%), but it was not statistically significant. Dong *et al.* did not compare cure rates in their paper, but their results suggested a trend toward a higher cure rate (65.8% vs 56.8%).

TABLE 1
Clinical Parameters of Patients Presenting with Peritonitis

Variable	Peritonitis type		p Value ^a
	Silent	Non-silent	
Episodes [n (%)]	45 (13.3)	294 (86.7)	
Age (years)			
Range	26–82	21–91	NS
Mean	61	62	
Sex [n (%) men]	27 (60)	190 (65)	NS
With diabetes (%)	42	55.4	0.08
Serum albumin (g/L)			
Range	21–45	15–52	NS
Median	37	35	
C-Reactive protein (mg/L)			
Range	<5 to 358	5 to 504	NS
Median	11	24	
Hemoglobin (g/dL)			
Range	5.3–15.2	4.7–17.4	NS
Median	11.4	11.4	
Serum WBC count			
Range	2.0–28.3	2.7–33.5	NS
Median	7.9	8.8	
Effluent WBC count			
Median	473	1000	NS
Range	129–2880	100–104 400	
Gram stain [n (%)]			
Positive	17 (38)	160 (54.4)	0.04
Negative	5 (11)	47 (16)	0.40
Polymicrobial [n (%)]	0	28 (9.5)	0.03
Fungal [n (%)]	0	7 (2.3)	0.30
Culture-negative [n (%)]	23 (51)	51 (17.3)	<0.0001
Treatment failure or removal of PD catheter [n (%)]	7 (15.5)	79 (26.8)	0.10
Death [n (%)]	0 (0)	5 (1.7)	0.38
Relapse [n (%)]	5 (11.1)	27 (9.1)	0.68
Cleared [n (%)]	33 (73.3)	183 (62.2)	0.15

WBC = white blood cell; PD = peritoneal dialysis.

^a Calculated using either the unpaired Student t -test, the chi-square test, or the Mann-Whitney test for nonparametric data.

It would be very interesting to speculate on the trends that have been found in the two studies. Both found that silent peritonitis episodes were more likely to be culture-negative. Did that finding occur because patients

were self-treating with antibiotics before presentation? Unfortunately, we did not routinely look for antibiotic activity in the PD effluent samples. An alternative explanation is that silent peritonitis episodes represent nonbacterial infections: Perhaps viral, chemical, or endotoxin-related? The latter conditions are often considered self-limiting and may partly explain the trend toward increased cure. However, the differences in cure rates were not statistically significant, and we do not advocate minimizing therapy simply because patients are asymptomatic.

Future studies on silent peritonitis should focus on an examination of PD effluent for the presence of bacterial DNA (3). Such an analysis might help to elucidate the causative bacterial organisms or determine nonbacterial causation for many of these silent peritonitis episodes.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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