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Letters to the Editor

Impact of Initial Antimicrobial Therapy in Patients with Bloodstream Infections Caused by *Stenotrophomonas maltophilia*

The impact of inappropriate initial antimicrobial therapy on the outcomes of patients with bloodstream infections caused by antibiotic-resistant gram-negative bacilli is not well defined. Recently, in an interesting study by Kang et al., inappropriate initial antimicrobial therapy was found to be associated with an adverse outcome, particularly in patients with a high-risk source of bacteremia caused by *Escherichia coli*, *Klebsiella pneumoniae*, *Enterobacter* spp., and *Pseudomonas aeruginosa* (1). In addition to the source of bacteremia, presentation with septic shock, *P. aeruginosa* infection, and an increasing acute physiology, age, and chronic health evaluation (APACHE II) score were poor prognostic factors in this study.

TABLE 1. Demographic characteristics of the patients with bloodstream infection caused by *S. maltophilia*

Demographic characteristic[c]	Value for indicated group			
	Total (n = 41)	Patients who died (n = 13)[a]	Surviving patients (n = 28)	P[b]
Age (mean yrs)	50.90	52.08	50.36	NS
Sex (no. of males/no. of females)	17/24	7/6	10/18	NS
No. of patients with indicated underlying illness or transplant				
Hematological malignancy	15	5	10	NS
Solid tumor	4	2	2	NS
Solid organ transplant	1	0	1	NS
Chronic renal failure	5	2	3	NS
Chronic liver disease	1	0	1	NS
Diabetes mellitus	3	2	1	NS
Duration of hospitalization before onset of bacteremia (median days)	24	45	21	0.049
Major surgery	8	5	3	0.037
Central venous catheter	37	12	25	NS
Mechanical ventilation	11	8	3	0.001
Previous antimicrobial therapy	39	12	27	NS
ICU stay at time of initial bacteremia	12	7	5	0.018
Neutropenia	13	4	9	NS
No. of patients with:				
Therapy				
Appropriate	29	5	24	0.002
Inappropriate	12	8	4	<0.001
Septic shock	7	7	0	<0.001
Indicated primary source of the bacteremia				
Pneumonia	5	3	2	NS
Central venous catheter	9	2	7	NS
Postsurgical-wound infection	1	0	1	NS
Unknown source of bacteremia	26	8	18	NS

[a] Thirty-day mortality.
[b] NS, not significant.
[c] ICU, intensive care unit. Neutropenia was defined as an absolute neutrophil count below 500 cells/mm^3. Septic shock was defined as sepsis associated with evidence of organ hypoperfusion and a systolic blood pressure 90 or 30 mm Hg less than the baseline or a requirement for the use of a vasopressor to maintain blood pressure.

Stenotrophomonas maltophilia is an emerging nosocomial pathogen with a tendency to be resistant to several antibiotics commonly used to treat nosocomial infections. Although a recent study reported no significant difference in the outcomes of patients who received appropriate therapy and outcomes of patients who received inappropriate therapy (2), at least two case-controlled studies described inappropriate therapy as an independent risk factor for mortality (3, 4).

At our center (Hacettepe University School of Medicine Hospital, a 1,000-bed tertiary-care teaching hospital), we evaluated the factors that influenced the outcomes in patients with bacteremia caused by *S. maltophilia*. We retrospectively reviewed the reports of our clinical microbiology laboratory to identify the study patients during a six-year period from 1998 to 2004. Case patients were defined as those who were >16 years of age, had at least one blood culture positive for *S. maltophilia*, and had clinical signs of systemic infection. The mortality rate 30 days after the onset of bacteremia was used as the main outcome measure. Appropriate therapy was defined as one or more agents active against *S. maltophilia*, given adequate dose and route of administration, not later than 24 h after the blood culture was obtained. All statistical analyses were performed by using SPSS software (version 10.0; SPSS, Chicago, IL). Numerical data were reported (medians and interquartile ranges). To test for the differences between quantitative variables between appropriate and inappropriate therapies, independent-sample t tests were used for normally distributed variables. Differences between categorical variables were analyzed by the chi-square test with the continuity correction or the Fisher exact test where appropriate.

Fifty-six patients with *S. maltophilia* bacteremia were identified. A total of 41 patients were included in the analysis. Fifteen cases whose medical records contained missing data were excluded from the study. The overall 30-day mortality rate was 31.7%. The patients who died within 30 days after the onset of *S. maltophilia* bacteremia had a longer duration of hospitalization and a higher rate of intensive care unit stay (at the time of initial bacteremia), as well as an increased need for mechanical ventilation and presentation with septic shock (Table 1). Twelve (29.2%) patients had received inappropriate therapy. Eight (66.7%) patients who were treated inappropriately died, compared to 5 (17.2%) of 29 who died though they received an appropriate antibiotic(s). Six of 8 (75.0%) patients who died were on carbapenems when *S. maltophilia* bacteremia developed.

In this limited study, we have shown a higher mortality rate for the bacteremic patients who did not receive appropriate therapy against *S. maltophilia*. We believe this issue should be further evaluated by case-controlled studies with a higher number of patients who had similar comorbid factors. In addition, the practicing physician should consider *S. maltophilia* as the causative organism in a patient who deteriorates under carbapenem therapy.

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