Cell-wall-deficient bacteria and culture-negative febrile episodes in bone-marrow-transplant recipients.


Source
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Abstract

BACKGROUND:
Although about 75-80% of neutropenic fevers are thought to be caused by infections, a causal organism can be confirmed microbiologically or suspected clinically in only 30-50%, and even fewer of these cases (16%) have a documented bacteraemia. The cause of neutropenic fever in the remaining cases remains elusive. We investigate the role of cell-wall-deficient bacteria in bone-marrow transplantation (BMT).

METHODS:

Blood cultures were obtained from bone-marrow-transplant recipients and were inoculated into an aerobic bottle with resin, an anaerobic bottle, and a bottle to isolate cell-wall deficient bacteria. When growth was detected in the blood-culture bottle for cell-wall-deficient bacteria, 20 microL of the broth was subcultured and the isolate identified by standard biochemical methods. The microbiological findings were correlated with the clinical characteristics of the patients.

FINDINGS:

From the 86 BMT recipients enrolled into the study, 798 sets of blood cultures were sent for laboratory analysis. 55 blood cultures were positive in the aerobic bottle, and the same isolates were also detected in 52 blood-culture bottles for cell-wall-deficient forms. For 20 sets of blood cultures, the isolates were detected only in the bottle for cell-wall-deficient forms. Blood for 13 (65%) of these 20 sets were sampled in the pre-engraftment neutropenic period, three (15%) during conditioning when the absolute neutrophil count was above 0.5 x 10(3)/L, and four (20%) in the post-engraftment period. 17 (85%) of the isolates were gram positive: four (20%) were Staphylococcus
spp and ten (50%) were Bacillus spp. Antibiotic treatment was successful in 19 (95%) of 20 episodes.

**INTERPRETATION:**

Bacteraemia due to cell-wall-deficient forms causes a significant proportion of so-called culture-negative febrile episodes in BMT recipients.

**Comment in**

- [Cell-wall-deficient bacteria](Lancet. 2001)
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