
Abstract:

Objective – To determine whether an earlier determination of staphylococcal species and their antibiotic susceptibility decreases unnecessary antistaphylococcal treatment and/or facilitates earlier appropriate treatment.

Methods – We used the Xpert MRSA/SA BC system (Cepheid) for immediate determination of species and their drug susceptibility in patients whose blood cultures revealed gram-positive cocci in clusters. We compared the treatment of patients whose physicians received early notification of these results (group 1) with the treatment of patients in a historical cohort with delayed reporting after traditional microbiological studies (group 2). Outcomes were analyzed according to whether blood culture was positive for Staphylococcus species other than S. aureus, methicillin-susceptible S. aureus (MSSA), or methicillin-resistant S. aureus (MRSA) and whether the drugs used were appropriate for methicillin-susceptible or methicillin-resistant staphylococci (hereafter referred to as “MSS drug” or “MRS drug” therapy, respectively).

Results – There were 44 (76%) of 58 patients with bacteremia due to Staphylococcus species
other than S. aureus in group 1 and 58 (55%) of 106 patients with bacteremia due to Staphylococcus species other than S. aureus in group 2 who received no antistaphylococcal antibiotics (P < 0.1). Five (6%) of 89 patients in group 1 and 31 (25%) of 123 patients in group 2 received 0â€“168 hours (0â€“7 days) of MRS drug therapy (P < 0.1). Among patients with MSSA bacteremia, the mean time to initiation of appropriate therapy was 5.2 hours in group 1 and 49.8 hours in group 2 (P = .007). Excluding patients who received MRS drug therapy for unrelated conditions, the mean duration of treatment was 19.7 hours in group 1 and 80.7 hours in group 2 (P = .003). Six (50%) of the 12 patients in group 1 and 39 (81%) of the 48 patients in group 2 received MRS drug therapy for MSSA bacteremia (P = .025). Time to initiation of therapy for MRSA bacteremia did not differ between groups.

Conclusions - The use of an assay with rapid results reduced the use of antistaphylococcal therapy among patients who did not have S. aureus bacteremia; it also decreased the use of MRS drug therapy and led to earlier appropriate therapy among patients with MSSA bacteremia.