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BACTEC and conventional culture systems comparison to isolate of microorganisms from blood and other sterile body fluids

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Blood stream infectious diseases are prevalent in children and adults. Rapid and accurate diagnosis of bloodstream infections are primarily based on conventional culture results, which saves time and prevents empiric treatment. This study aims to BACTEC and conventional culture systems comparison to isolate of microorganisms from blood and other sterile body fluids, on blood specimens collected from three training hospitals in Tehran, Iran. BACTEC 9120 and conventional methods were used for isolation of microorganism from specimens including blood and other body fluid samples collected from patients hospitalized in the selected hospitals during the study period, from April to June 2009. Time for positive and negative results and hospital charge were estimated for the two culture methods. In total 747 specimens were possessed by BACTEC 9120 systems and 787 by conventional method. Patients aged between 3 days and 8 years old, (mean 11.4 ± 21.9 years); 52% of patients were male and 48% female; Out of 747 specimens were possessed by BACTEC 9120 system, 26% (196/747) and from 787 specimens cultured by conventional method 5% (49/787) were positive ($p < 0.05$). Hospital stay was 13.8 ± 12.9 days in BACTEC 9120 and 17.9 ± 14.9 days in Conventional method ($p < 0.05$), respectively. Time for positivity by BACTEC system was 3.8 ± 1.1 days and 5.9 ± 2.5 days in conventional method ($p < 0.05$), treatment response showed 1.8 day earlier result in patients that their specimens were processed by BACTEC 9120 system. Death rate in BACTEC 9120 method was 6% and 11% in conventional method ($p > 0.05$). In conclusion implementation of BACTEC system for microbiologic detection of pathogens decreases the admission time and early diagnosis and treatment results are cost effective for patient management and prevention of antibiotic resistance.

Biography

Maham S is working as the Manager of Pediatric Infections Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran. His research interest is in medical and diagnostic methods.

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