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Enhanced Detection of Coagulase Negative Staphylococcus
in Pediatric Blood Cultures

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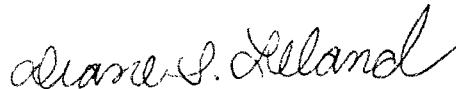
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ABSTRACT

Bacteremia is a life-threatening disease process that requires a prompt and accurate diagnosis so that proper treatment can be initiated. Automated blood culture systems allow for the most rapid means for detection and identification of microorganisms in blood. Most microorganisms that cause bacteremia can be detected and evaluated quickly for their clinical significance. This is not the case with coagulase-negative staphylococci. Coagulase-negative staphylococci are often blood culture contaminants and require longer detection times. Thus, we attempted to enhance the detection of SCN in blood cultures by modification of the media, growth conditions, and the detection system. These modifications failed to decrease the time to detection for coagulase-negative staphylococci. Preliminary results indicate that the growth rate of coagulase-negative staphylococci may be enhanced at 42°C. However, 42°C blood culture systems do not exist for use in clinical labs as most other microorganisms would be inhibited by this temperature. Thus, we feel that the design of a SCN-specific amplification system would offer the best alternative for rapid detection of SCN.

OUTLINE

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- A. Historical Perspective
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 - 2. YE Concentration
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 - 7. Iron
 - 8. Lipid Supplement
- D. Determining the Growth Curves Using a Spectrophotometer
- E. Direct Identification by DNA Probe
- F. Probe Manipulations
 - 1. EDTA
 - 2. PEG
 - 3. Temperature
 - 4. Manipulating the Standard Probe Protocol

III. Results

- A. Determining the Proper SCN Concentration
- B. Nutrient Evaluations
 - 1. TSB, YE, and Dextrose
 - 2. YE Concentration
 - 3. YE Volume
 - 4. TSB Volume
 - 5. TSB Volume and YE Concentration
 - 6. Dextrose Volume
 - 7. Iron
 - 8. Lipid Supplement
- C. Determining the Growth Curves Using a Spectrophotometer

- D. Direct Identification by DNA Probe
- E. Probe Manipulations
 - 9. EDTA
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 - 12. Manipulating the Standard Probe Protocol

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 - b. Optical Density
 - 2. S. aureus
 - a. BACTEC-9240
 - b. Optical Density
 - 3. S. haemolyticus
 - a. BACTEC-9240
 - b. Optical Density
 - 4. S. epidermidis
 - a. BACTEC-9240
 - b. Optical Density
- E. Optical Density Growth Curves for S. epidermidis Grown at 37°C and at 42°C

VII. References

VIII. Curriculum Vitae