First Blood Culture Specimen In Endocarditis

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Summary:

Blood cultures were taken from suspected infective endocarditis. A total of 26 patients were taken, 18 were proved bacteriologically as having infective endocarditis. Three blood cultures were performed on these patients. It was seen that 66.66% of these patients could be diagnosed from the very first blood culture specimen.

Introduction:

In cases of endocarditis in which the infection is fulminating it may not be possible to delay the treatment till the mandatory three blood cultures be taken rather if results could be obtained from the first specimen alone, it will greatly speed up the recovery. Therefore the importance of blood cultures done quickly and effectively are highly signified[1].

Table I

Diagnosis on First Blood Culture

Causative Agent	No. of Patients	First Culture Positive	Results of First Culutre
Streptococcus viredans	13	8	61.53%
Streptococcus faecalis	1	1	100%
Staphylococcus aureus	3	2	66.66%
Staphylococcus albus	1	1	100%

The present work was undertaken to see as to how many cases of bacterial endocarditis could be identified by the first blood culture specimen alone so that the treatment regimen could be started as early as possible.

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Material and Method:

Three 10 ml. blood samples before antibiotic therapy were collected from each patient at an interval of at least 2 hours over a period of 24 - 48 hours. Blood was inoculated into blood culture bottles containing base broth at patients bedside and incubated at 37c. The cultures were kept for three week before discarding.

Results:

Table I shows the number of cases in which the diagnosis was made in the first blood culture specimen. Streptococcus viredans was the causative organism in 61.53% of the first cultures. For Staphylococcus aureus 66.66% of the patients first cultures were positive. For

Table II

Results of Different Blood Trials

Total Number of Cultures	77	
Total Positive Cultures	29	=36.36%
Culture	Total No. Positive	%
First Blood Specimen	12	15.58%
Second Blood Specimen	5	6.49%
Third Blood Specimen	12	15.58%

Streptococcus faecalis and Staphylococcus albus there was only one patient in both instances of which the first culture was postive. Thus Streptococci and Staphylococci the most common causative agents of endocarditis have a 66.66% chance of isolation even if the first culture is made only.

Discussion:

Opinions differ as the number of blood cultures which should be taken from suspected cases. Three blood samples with at least a two hours interval between each sample should be collected. Scientists[2,3,4,5,] have observed that if a microorganism is not isolated from one of the first three cultures it is unlikely it will be isolated from additional cultures.

In our study we found that the first culture yielded positive results in 66.66% of the patients that were confirmed bacteriologically. The studies done by Rabinovich (1965)[6] found 80% of the first blood cultures to be positive. Therefore in cases in which the mandatory three blood cultures cannot be taken at least one blood culture specimen should be collected. From the present work in which 66.66% of the patients gave positive on first culture and in the studies done by Rabinovich et al (1965)[6] in which 80% positive results were obtained are significant to show that if the mandatory three blood cultures cannot be drawn at least one blood culture should be done in all cases suspected of having bacterial endocarditis.

Table III

Species Isolated on Blood Cultures

Organism	Bacteriologically Positive Patients	1st Blood Culture	2nd Blood Culture	3rd Blood Culture
Strept. viredans	13	8	4	9
Strept. faecalis	1	1	-	-
Staph. aureus	3	2	1	2
Staph. albus	1	1	-	1
Total:	18	12	5	12

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