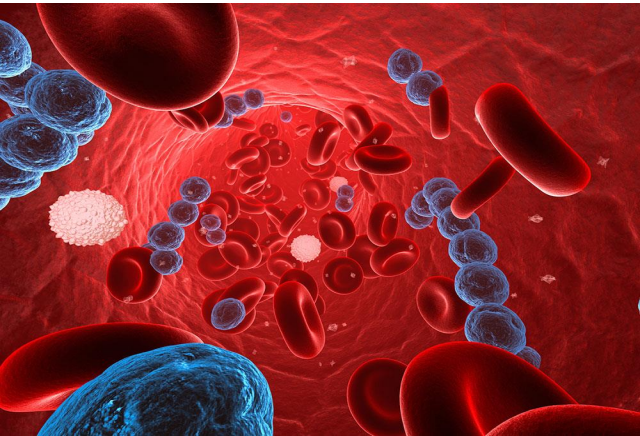


NECESSITY OF FULL SEPSIS SCREEN IN NEONATAL SEPSIS: Experience in a resource limited setting



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OUTLINE

- Background
- Aims and Objectives
- Methods
- Results
- Discussion
- Conclusion
- References



BACKGROUND

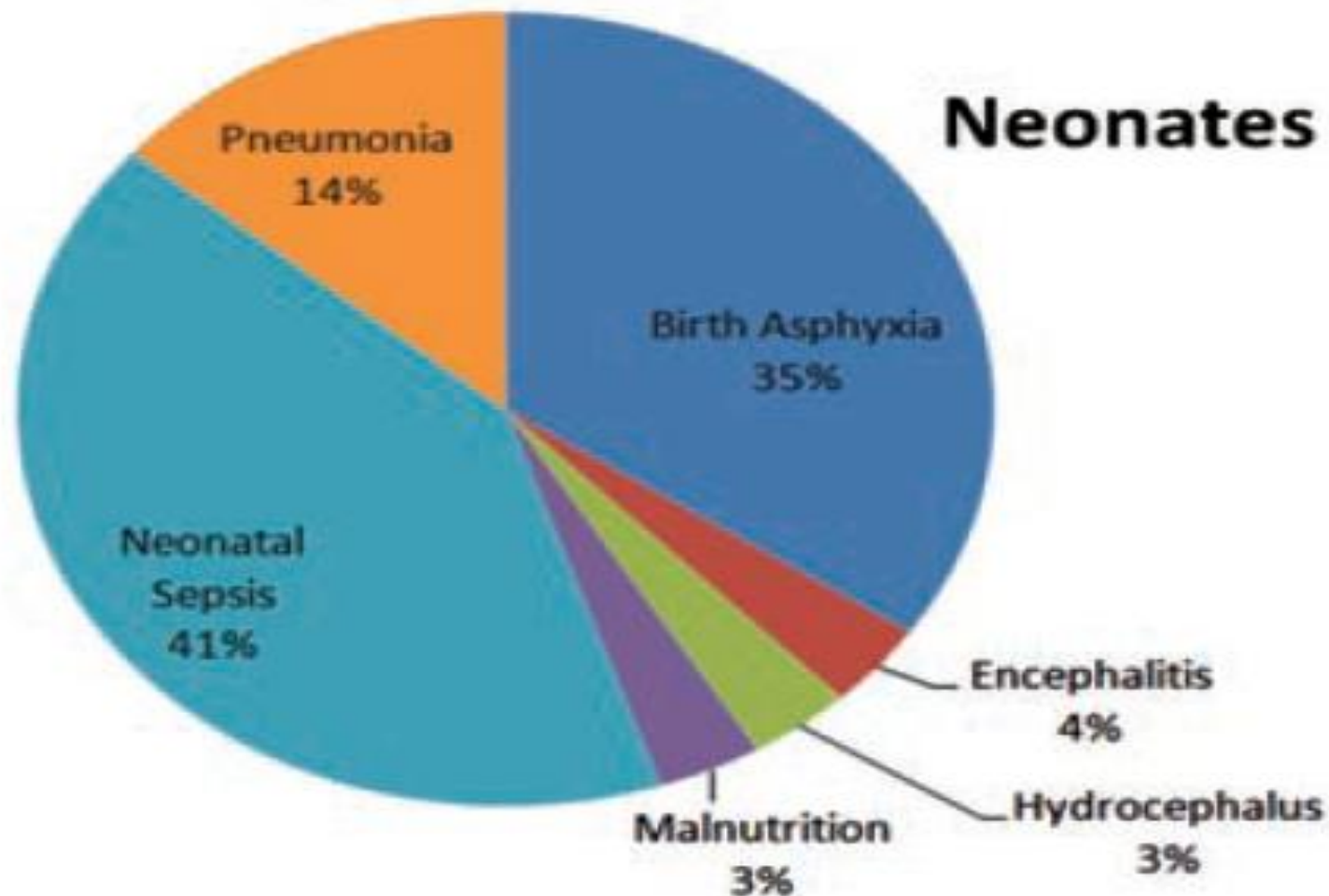


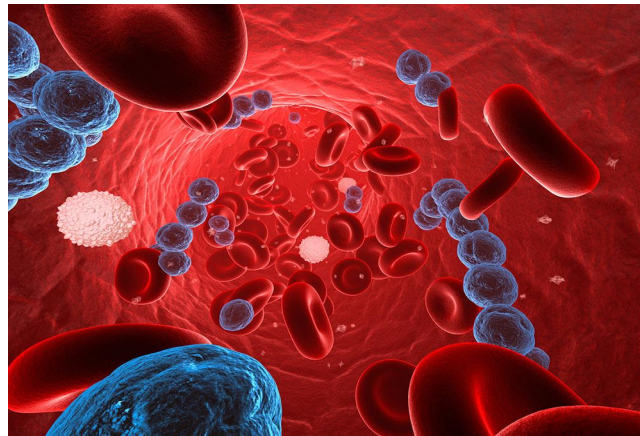
Figure 2. Causes of death among neonates.

BACKGROUND

- Early diagnosis and treatment of the newborn infant with suspected sepsis are essential to prevent severe and life threatening complications
- Diagnostic tests that differentiate infected from non-infected neonates have the potential to make significant impact on neonatal care.

AIMS AND OBJECTIVES

- This study aimed evaluating the necessity of a full sepsis work up and its effectiveness in making the diagnosis of neonatal sepsis in a resource limited environment.





METHODS

- This was a cross sectional study conducted in Jos University Teaching Hospital (JUTH), Jos, Nigeria.
- The Integrated Management of Childhood Illnesses (IMCI) criteria for diagnosis of neonatal sepsis were used to select subjects for the study.
- Blood samples, Cerebrospinal fluid (CSF) and urine samples were collected from 165 neonates through aseptic procedures.
- Samples were processed and analyzed by standard CLSI methods in the microbiology laboratory of JUTH.

RESULTS

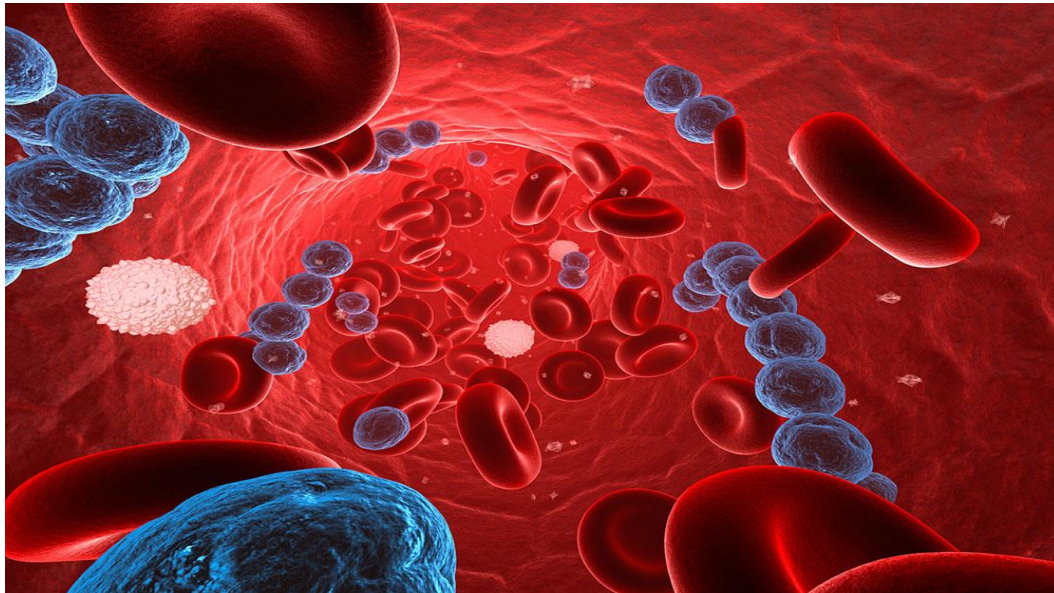


Table 1: Socio-demographic characteristics of the neonates studied in Jos University Teaching Hospital

Demographic Characteristics		Frequency	Percentage
Age	< 3 days	79	47.9
	> 3 days	86	52.1
Gender	Male	91	55.1
	Female	74	44.9
Place of Birth	Hospital	145	87.9
	Home	17	10.3
	Others	3	1.8

Table 2: Distribution of culture results in relationship to types of specimen collected from the neonates in Jos

Samples	Number of Specimen	Culture Positive Frequency (%)	Culture Negative Frequency (%)
Blood	165	68 (41.2)	97 (58.8)
Urine	165	5 (3.0)	160 (97.0)
Cerebrospinal fluid	165	3 (1.8)	162 (98.2)

$\chi^2 = 127.434$ df = 2; P < 0.001

Proportion of positive samples from full sepsis work up in the neonates studied in Jos

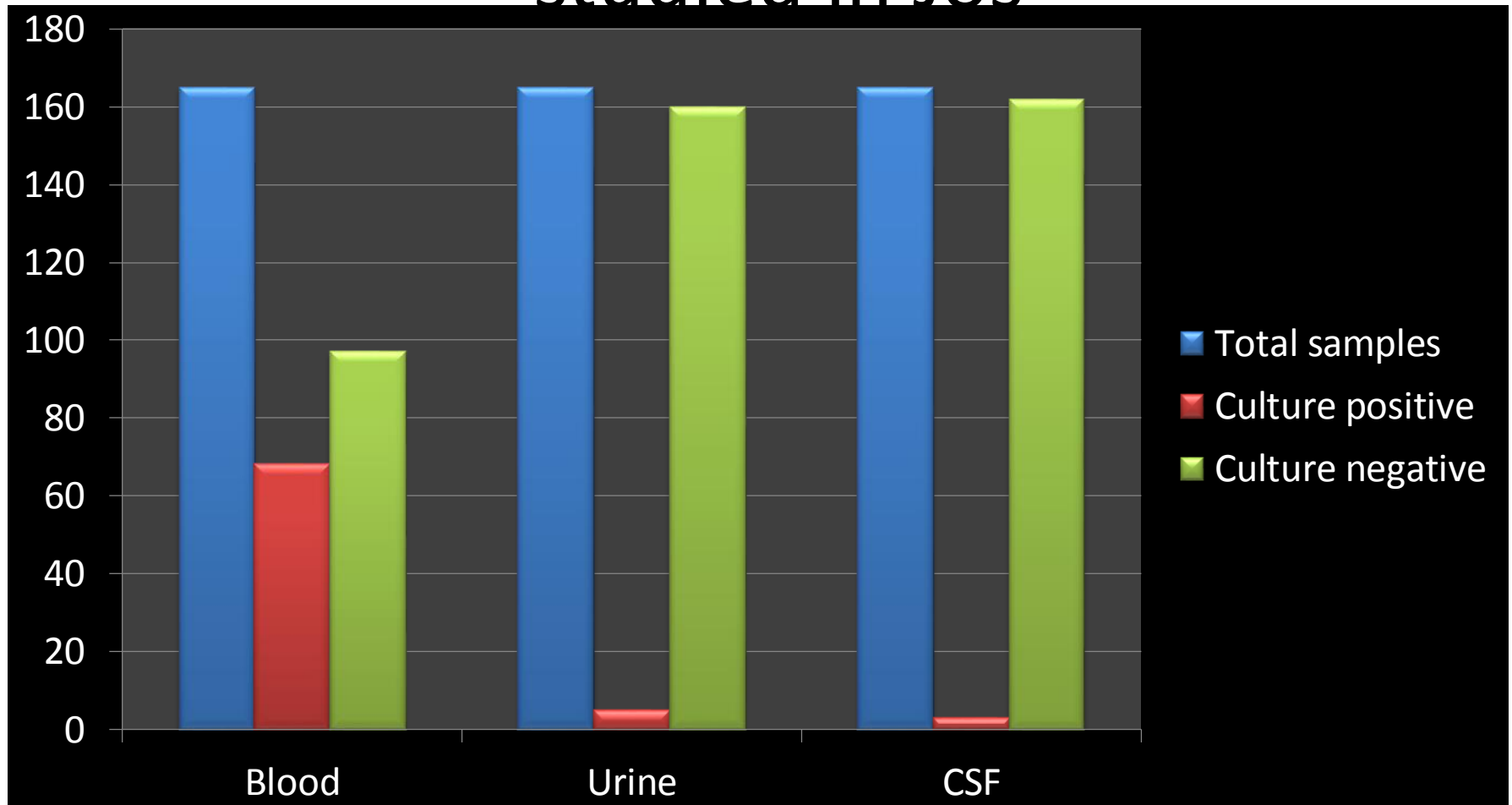


Table 3: Frequency of isolates from different neonatal samples studied in Jos University Teaching Hospital

Isolate	Blood Frequency (%)	Urine Frequency	Cerebrospinal fluid Frequency
<i>K. pneumoniae</i>	22 (32.4)	2 (2.9)	1 (1.5)
<i>S. aureus</i>	20 (29.4)	1 (1.5)	
<i>E. coli</i>	8 (11.8)	1 (1.5)	1 (1.5)
CoNS	5 (7.4)		
<i>Citrobacter</i> spp.	3 (4.4)		
<i>Enterobacter</i> spp.	2 (2.9)		
<i>Enterococcus</i> spp.	2 (2.9)		
<i>Salmonella</i> spp.	2 (2.9)		
<i>Pseudomonas</i> spp.	1 (1.5)	1 (1.5)	
<i>L. monocytogenes</i>	1 (1.5)		
<i>P. mirabilis</i>	1 (1.5)		
<i>S. pneumoniae</i>	1 (1.5)		1 (1.5)

SUMMARY OF RESULTS

- A total of 68 isolates were recovered from 165 sets of blood culture samples representing 41.2% positive blood culture results.
- Only three (1.8%) organisms were isolated from 165 CSF samples.
- Five (3%) isolates were recovered from 165 urine samples
- Three neonates had both CSF and blood isolates of the same organism. Similarly, four of the five neonates with urine isolates also had blood isolates of the same organism.

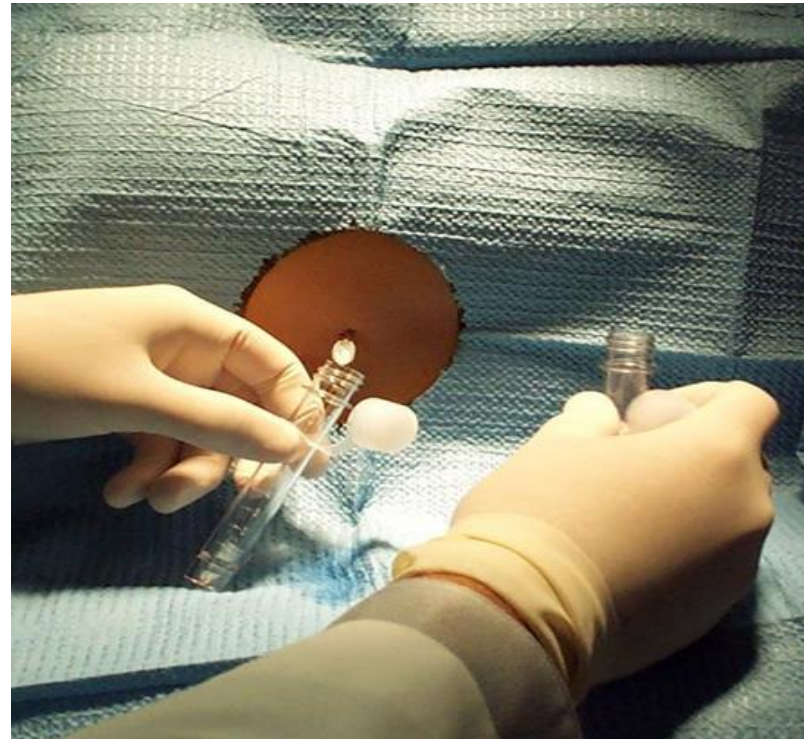


Lab Dilemmas- The Bloody Tap



The Bloody Tap

- Don't ask me, you should have gotten it right the first time



- In Low-middle income countries like Nigeria, culture of blood and body fluids by manual methods remain the main method of diagnosis of neonatal sepsis.
- Other laboratory tests such as
 - procalcitonin assay,
 - C-reactive protein assay,
 - automated blood culture systems,
 - PCR techniques,
 - Counter immune-electrophoresis and
 - latex agglutination tests, etc are rarely available and where available they are either too expensive or not easily accessible.

- A full sepsis work up in a neonate suspected of an infection involves the collection of blood, CSF and urine sample as well as aspirates and swabs from discharging sites if any.
- Is this necessary for every neonate suspected of an infection? Is it even cost effective?
- Are we causing more harm than good?

- Neonatologists are faced everyday with a dilemma
- making a diagnosis of neonatal sepsis in a neonate who does not localize the focus of an infection.
- These considerations are even more important in low-middle income countries like ours where resources are limited.

DISCUSSION

- Should we put a neonate through the rigors of a complete sepsis work up?*
- Should we always take samples such as urine and CSF when organisms in these sites are most often also present in the blood of such neonates.

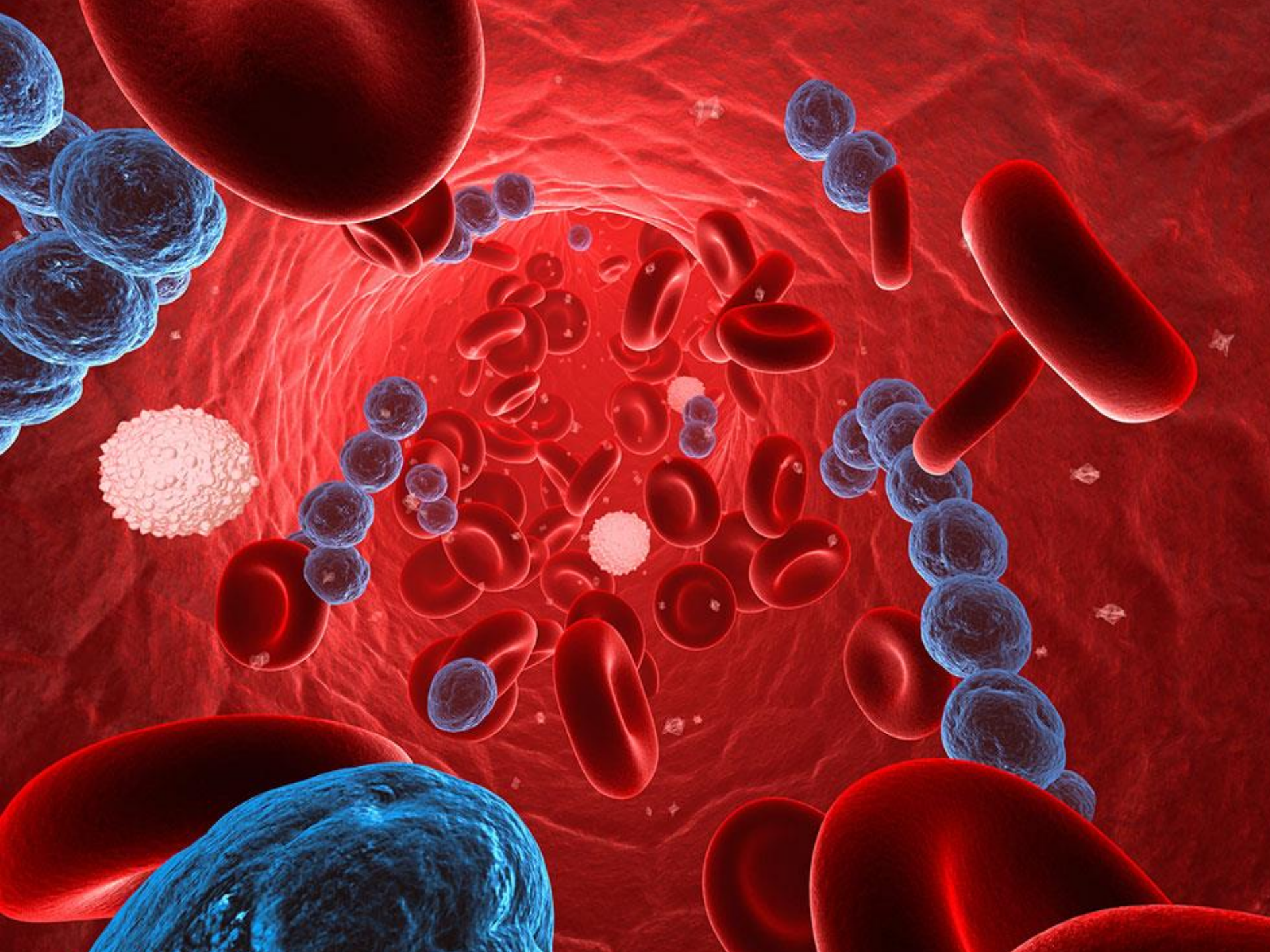
*(Weisman et al., 1983, Eldadah et al., 1987, Ajayi OA and Mokuolu OA, 1997)

CONCLUSION

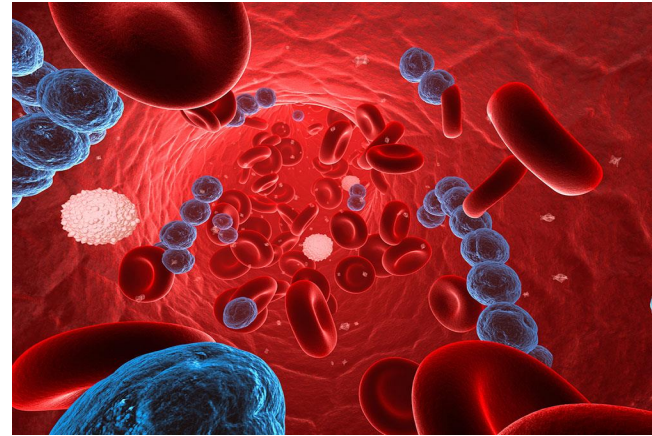
- The study found that blood culture is the most effective sample for laboratory diagnosis of neonatal sepsis.
- We recommend that urine and CSF samples be collected only when specifically indicated and may not be considered a necessity in all cases so as not to put the already sick neonate through unnecessary procedures.

- What would you do?





- FURTHER RESEARCH!



- Attract funding to provide other forms of diagnostic aids
- Prevention of neonatal sepsis

Acknowledgements

- Laboratory technicians, technologists and resident doctors of the department of medical microbiology of JUTH
- Staff of the neonatal unit in JUTH
- ASLM

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THANK YOU FOR NOT FALLING ASLEEP!



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