Septic arthritis: A changing trend – A tertiary center’s experience

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Abstract

INTRODUCTION: Septic arthritis is one of the most common deep seated infection in neonates. However, incidence of septic arthritis is increasing in high risk referral NICU.

AIMS AND OBJECTIVES: To know etiology, clinical profile, risk, antibiotic susceptibility and prognostic factors in neonates with septic arthritis.

METHODS: This is a retrospective observational study of all neonates admitted with diagnosis of septic arthritis from Jan 2016 to Aug 2017 at Indira Gandhi Institute of Child Health, Bangalore. Data was collected from case records and analyzed using standard statistical methods.

RESULTS: A total of 116 neonates were admitted with diagnosis of septic arthritis. Decreased movement of involved limb (100%) followed by swelling of joints (90%) were the common presenting features. Single joint was involved in 66(57%) babies and Hip joint 80(69%) was most commonly involved followed by knee joint 36(31%). Unilateral joint involvement was seen in 83(71) % cases and bilateral in 33(28%) cases. Gram negative infections accounted for majority of cases among which klebsiella was most common organism followed by candida infection. Low birth weight, anemia, prolonged NICU stay, prematurity, leukocytosis and male sex were strongly associated with septic arthritis.

CONCLUSION: The incidence of septic arthritis due gram negative infections and fungal infections is increasing. Prematurity and low birth weight with prolonged NICU stay increases the risk of developing septic arthritis.

Background

- Septic arthritis is one of the most common deep seated infections in neonates in developing countries.
- The incidence in developing countries range from 0.5 to 1 in 1000.
- Diagnosis is difficult in neonates due to lower incidence of this condition and paucity of clinical signs and symptoms.
- Delayed or improper treatment could lead to joint damage, osteomyelitis, growth retardation, other deep seated infections and death.
- Gram positive infections were considered as the most common cause of septic arthritis.

Objective

To know etiology, clinical profile, risk factors, complications, antibiotic susceptibility in neonates with septic arthritis.

Methodology

STUDY DESIGN

- Retrospective observational study

STUDY SUBJECTS

- Neonates admitted to a Level III care NICU with septic arthritis

STUDY LOCATION

- Indira Gandhi Institute of Child Health, Bangalore

METHODOLOGY

All neonates with clinical diagnosis of septic arthritis were included in the study
The data was collected by retrospective review of hospital case records from Jan 2016 to Aug 2017

Baseline variables, demographic data, clinical features, complications and antibiotic sensitivity were collected

Standard statistical methods were used for the analysis

Table 2: Sensitivity pattern of common organisms causing septic arthritis

Organism	Piperacillin tazobactam	Meropenem	Vancomycin	Amoxy clav	linezolid	Fluoroquinolone
Klebsiella (25)	60%	92%	32%	4%	4%	16%
MRSA (9)	34%	56%	100%	0%	100%	45%
Enterocooci (4)	50%	75%	100%	25%	25%	25%
E coli (4)	50%	100%	75%	25%	25%	50%
Streptococcus (2)	100%	100%	100%	50%	100%	50%
Others (10)	50%	90%	40%	0%	40%	50%

	Amphotericin B	Fluconazole	Voriconazole	Caspofungin
Candida (16)	100%	100%	100%	100%

Results

- A total of 116 neonates were included in the study
- Most common presenting feature was decreased movement of involved limb (100%) followed by swelling of joints (90%)
- Hip joint was most commonly involved followed by knee joint
- Gram negative infections accounted for majority of cases followed by fungal infections and gram positive infections
- Klebsiella was the most common organism followed by candida albicans
- Among the culture positive cases NICU stay, low birth weight, leukocytosis, prolonged IV fluid administration and prematurity were strongly associated with septic arthritis

Results

Table 1: Baseline variables

Base line Variables	Values
Age of presentation (days)*	23 (16 -30)
Birth weight #	2.2 (0.64)
Males @	64 (56)
NVD @	84 (73)
NICU stay (outside) *	8 (4-15)
Risk factors @ I V fluid Prematurity Asphyxia	63 (55) 30 (26) 12 (10.4)

Median (IQR) *, n(%) @ , mean (SD) #.

Table 3: clinical and laboratory features

Clinical and lab features	Values
Site @ Hip Knee Multiple Elbow Wrist	80 (68.7) 36 (31.3) 8 (7) 4 (3.5) 3 (2.6)
Unilateral @ Bilateral @	83 (71) 33 (28)
Duration of symptoms *	9 (4-11)
CRP (mg/l) #	50.6 (36.9)
Leukocytosis @ Leukopenia @ Thrombocytosis @ Hemoglobin @	46 (40) 6 (5) 38 (33) 11.4 (2.5)
Complications @ Re exploration Meningitis Osteomyelitis	9 (7.7) 5 (4.3) 3 (2.5)
Gram positive bacteria @ Gram negative bacteria @ Candida @	11 (18.3) 33 (55) 16 (26)

Median (IQR) *, n(%) @ , mean (SD) #.

Table 4: Comparison based on blood culture

	Culture positive	Culture negative	P value
NICU stay#	10.2 (8.3)	6.5 (4.3)	0.004
Birth weight#	2.2 (0.7)	2.6 (0.6)	0.001
Hemoglobin#	11 (2.3)	12 (2.7)	0.024
Total leukocyte count #	1459.8 (4397.9)	11121.8 (5825.9)	0.001
Low birth weight#	24 (40)	34 (63)	0.014

Mean (SD) #.

Conclusion

- The incidence of septic arthritis due to gram negative infections and fungal infections is increasing.
- Prematurity, low birth weight, prolonged NICU with unnecessary IV fluid administration increases the risk of developing septic arthritis.