

Candidial Infection in Pre - Term Babies- A Clinical Study

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Abstract

Background: Invasive candidiasis in neonates is a serious and common cause of late onset sepsis and has a high mortality. The present study was conducted to assess candidial infection in pre- term babies. **Subject and Method:** The present study was conducted in the Department of Neonatology. It comprised of 56 low birth weight babies of both genders. In all cases, gestational age, birth weight, length of stay before candidemia, presence of CVC, stay in NICU ≤ 7 days and mechanical ventilation was recorded. **Result:** Out of 56 patients, boys were 32 and girls were 24. Gestational age (weeks) was 30.2, birth weight was 1214.5 grams, length of stay before candidemia was 10.2 days, presence of CVC in 54, stay in NICU ≤ 7 days was seen in 52 and mechanical ventilation was seen in 47. Clinical manifestations were candida endophthalmitis in 13, candida endocarditis in 16 and congenital cutaneous candidiasis in 27. The difference was significant ($P < 0.05$). **Conclusion:** Authors found that Candidial infection is common in newborn. Clinical manifestations were candida endophthalmitis, candida endocarditis and congenital cutaneous candidiasis.

Keywords: Babies, Candida endophthalmitis, Pre- term.

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Received: January 2020

Accepted: January 2020

Introduction

Candidiasis refers to infection with fungi of the genus *Candida*. Candidemia is presence of *Candida* fungi in the blood. Catheter-related candidemia refers to candidemia that resolves rapidly after catheter removal and initiation of therapy. Disseminated, or invasive, candidiasis refers to persistent infection after removal of a catheter and/or isolation of *Candida* from other normally sterile body sites.^[1,2]

Invasive candidiasis in neonates is a serious and common cause of late onset sepsis and has a high mortality (25 to 35%). The incidence of such fungal infections has increased 11 fold over the past 15 years. *Candida* species are the 3rd most frequent organism (after coagulase negative *Staph.* and *Staph. aureus*) isolated in late onset sepsis in very low birth weight infants.^[3]

Although blood stream infection (BSI) due to *Candida* species (spp.) in the neonatal intensive care unit (NICU) is less frequent than that due to Gram-positive or Gram-negative bacteria, it has higher morbidity and mortality rates.^[4] Risk factors for neonatal candidemia include prematurity, use of central venous lines, endotracheal tubes, parenteral nutrition, broad-spectrum antibiotic administration (especially third-generation cephalosporins), prolonged hospitalization, abdominal surgery, exposure to H2 blockers, and *Candida* colonization. Although *Candida albicans* is the most prevalent yeast pathogen, BSIs caused

by *Candida non-albicans*, particularly *Candida parapsilosis* complex and *Candida glabrata* complex, have increased in recent years.^[5] The present study was conducted to assess candidial infection in pre- term babies.

Subjects and Methods

The present study was conducted in the Department of Neonatology. It comprised of 56 low birth weight babies of both genders. The study was approved from institutional ethical committee.

In all cases, gestational age, birth weight, length of stay before candidemia, presence of CVC, stay in NICU ≤ 7 days and mechanical ventilation was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

Total- 56		
Gender	Boys	Girls
Number	32	24

[Table 1] shows that out of 56 patients, boys were 32 and girls were 24.

[Table 2] shows that gestational age (weeks) was 30.2, birth

weight was 1214.5 grams, length of stay before candidemia was 10.2 days, presence of CVC in 54, stay in NICU ≤ 7 days was seen in 52 and mechanical ventilation was seen in 47.

Table 2: Characteristics of patients

Characteristics	Number
Mean Gestational age (weeks)	30.2
Mean Birth weight (grams)	1214.5
Mean Length of stay before candidemia	10.2
Presence of CVC	54
Stay in NICU ≤ 7 days	52
Mechanical ventilation	47

Table 3: Clinical manifestations

Clinical manifestations	Number	P value
Candida endophthalmitis	13	0.01
Candida endocarditis	16	
Congenital cutaneous candidiasis	27	

[Table 3], graph I shows that clinical manifestations was candida endophthalmitis in 13, candida endocarditis in 16 and congenital cutaneous candidiasis in 27. The difference was significant (P< 0.05).

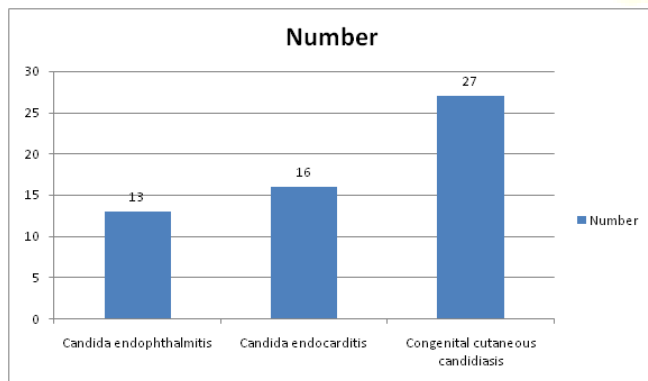


Figure 1: Clinical manifestations

Discussion

Preterm infants are predisposed to Candida infections because of immaturity of their immune system and invasive interventions.^[6] Transmission of Candida may be vertical (from maternal vaginal infection) or nosocomial.^[7] Colonization of health workers is as high as 30%. Initial site of colonization is usually the gastrointestinal tract. Risk factors for candidiasis include: a) low birth weight (use of broad spectrum and/or multiple antibiotics; c) central venous catheters; d) parenteral alimentation and intravenous fat emulsion; e) colonization with Candida and/or previous episode of mucocutaneous candidiasis.^[8] The present study was conducted to assess candidial infection in preterm babies.

In present study, out of 56 patients, boys were 32 and girls were 24. Zaoutis et al^[9] found that cumulative incidence rates of IC were 4.2%, 2.2% and 1.5% for birth-weight

categories <750 g, <1000 g, <1500 g, respectively. Forty nine infants with IC and 90 controls were enrolled. Necrotizing enterocolitis (NEC) was the only independent risk factor for IC (p = 0.03). CNS candidiasis occurred in 50% of evaluated infants, while congenital candidiasis occurred in 31%. Infants with CNS candidiasis had a higher mortality rate (57%) and incidence of deafness (50%) than the overall cohort of infants with IC. NDI (56% vs. 33%; p = 0.017) and death (45% vs. 7%; p = 0.0001) were more likely in cases than in controls, respectively. IC survivors were more likely to be deaf (28% vs. 7%; p = 0.01). IC independently predicted mortality (p = 0.0004) and NDI (p = 0.018).

We found that gestational age (weeks) was 30.2, birth weight was 1214.5 grams, length of stay before candidemia was 10.2 days, presence of CVC in 54, stay in NICU ≤ 7 days was seen in 52 and mechanical ventilation was seen in 47. Clinical manifestations was candida endophthalmitis in 13, candida endocarditis in 16 and congenital cutaneous candidiasis in 27.

Fernandez et al^[10] conducted a study in which forty-one candidemia cases were reviewed (overall incidence, 3.0 per 100 admissions). Candida parapsilosis sensu stricto (58.5%) and C. albicans (34.1%) were the most common species recovered. A variable drift through years was observed; in 2015, 75% of the cases were caused by non-albicans species. The duration of NICU hospitalization of patients with non-albicans was significantly longer than in those with C. albicans (median days, 10 versus 12). Patients with non-albicans species were more likely to have parenteral nutrition than those with C. albicans (96.3% versus 71.4%). Candida albicans was the dominant species in Europe and America (median, 55% and 60%; resp.); non-albicans species predominate in Asia (75%). Significant geographic variation is evident among cases of candidemia in different parts of the world, recognizing the importance of epidemiological data to facilitate the treatment.

Conclusion

Authors found that Candidial infection is common in newborn. Clinical manifestations was candida endophthalmitis, candida endocarditis and congenital cutaneous candidiasis.

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How to cite this article: Venkatesh G, Arun Kumar P. Candidial Infection in Pre- Term Babies- A Clinical Study. *Asian J. Clin. Pediatr. Neonatol.* 2020;8(1):82-84.

DOI: [dx.doi.org/10.47009/ajcpn.2020.8.1.19](https://doi.org/10.47009/ajcpn.2020.8.1.19)

Source of Support: Nil, **Conflict of Interest:** None declared.

