Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Indian Citation Index (ICI) Index Copernicus value = 91.86

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Healthcare- associated infections in a Neonatal Intensive Care Unit

[1]Amandeep, [2]Aarti

[1]MD Paediatrics, [2]MD Medicine, Zonal Hospital Dharamshala, H.P., India

ABSTRACT:
Background: To assess the healthcare- associated infections in neonatal intensive care unit. **Materials & methods:** A total of 50 patients were enrolled. . Blood cultures and complete blood counts were taken from infants after birth in the NICU. Data was collected and results were obtained. **Results:** The rate of healthcare associated infections is 12%. The most common are the blood borne infections with 15(83.4%) followed by urinary tract infections with 2 (5.6%) of the cases. **Conclusion:** The most common healthcare associated infections in the neonatal intensive care unit are the blood borne infections**.**
Keywords: intensive care unit, newborns, blood- borne infections.

Received: 17 May, 2022 Accepted: 19 June, 2022

Corresponding author: Aarti, MD Medicine, Zonal Hospital Dharamshala, H.P., India

This article may be cited as: Amandeep, Aarti. Healthcare- associated infections in a Neonatal Intensive Care Unit. J Adv Med Dent Scie Res 2022;10(7):155-156.

INTRODUCTION

Healthcare-associated infection (HAI) is a serious problem in neonates who are admitted to the neonatal intensive care unit (NICU). The HAI is associated with increases in mortality, morbidity, and prolonged length of hospital stay. The rate of healthcare-associated infections (HAIs) increases with the degree of both prematurity and low birth weight. There are many risk factors of healthcare-associated infections in this group of patients, including immaturity of the immune system, barrier functions of the skin and gastrointestinal tract, and the invasive diagnostic and therapeutic procedures which newborns undergo [(1,2,3)]
Neonatal intensive care units are vulnerable to outbreaks and sporadic incidents of healthcare-associated infections (HAIs). The incidence and outcome of these infections are determined by the degree of immaturity of the neonatal immune system, invasive procedures involved, the aetiological agent and its antimicrobial susceptibility pattern and, above all, infection control policies practised by the unit. It is important to raise awareness of infection control practices in resource-limited settings, since overdependence upon antimicrobial agents and co-existing lack of awareness of infection control is encouraging the emergence of multi-drug-resistant nosocomial pathogens.[(4,5)]

MATERIALS & METHODS

A total of 150 patients were enrolled. . Blood cultures and complete blood counts were taken from infants after birth in the NICU. Patients who were not infected or were not in the incubation period at the time of admission and had a positive culture after the third day of admission were defined as patients with HAIs in the present study. The data was collected and analysed and results were obtained.

RESULTS

The rate of healthcare associated infections is 12%. The most common are the blood borne infections with 15(83.4%) followed by urinary tract infections with 2 (5.6%) of the cases. The most common HAIs pathogens in all neonates were coagulase-negative staphylococci (32.6%) and Klebsiella pneumoniae (27.4%)

Table1: healthcare associated infection rates in neonatal intensive care unit

No. of patients in NICU	No. of healthcare associated infections	Rate of healthcare associated infection
150	18	12%

Table2: neonatal healthcare associated infections

Blood stream infections	Urinary tract infections	pneumonia	Total
15 (83.4%)	2 (11.12%)	1 (5.6%)	18

DISCUSSION

Bloodstream infections (BSIs) are the most common HAIs in the NICU. They can occur in isolation or in association with urinary tract infections (UTIs) and meningitis. Endocarditis, osteomyelitis, pyogenic arthritis, ventilator associated pneumonia, peritonitis, conjunctivitis, and skin abscesses are important, less common HAIs. [6,7]

The surveillance covered 1,699 neonates of all birth weight (BW) classes with > 2 days NICU stay. Infections were defined using standard Centers for Disease Control and Prevention definitions adapted to neonatal pathology and were considered to be healthcare-associated if they developed > 2 days after NICU admission. One hundred-fifty-three HAIs were diagnosed with a frequency of 9% and an incidence density of 3.5 per 1000 days of hospital stay. Most frequent pathogens responsible for all types of infections were: P. aeruginosa (17%), C. parapsilosis (16.3%), E. coli (13.1%), C. albicans (10.5%), non-extended spectrum beta-lactamase (ESBL) K. pneumoniae (7.8%), and coagulase-negative Staphylococci (5.2%). No microbiological diagnosis was achieved for 6.5% of infections. HAIs developed in all BW classes but low BW neonates were at major risk to acquire HAIs in our NICU. Findings highlight the importance of an extensive surveillance approach in the NICU setting, which includes all BW classes of neonates and monitors infections associated with the use of medical devices.[8]

Another research involved documentation of 2610 neonates hospitalized in this period in the Neonatal Intensive Care Unit. The incidence, clinical presentation, mortality and causative factors of healthcare-associated infections were assessed. The prevalence of healthcare-associated infections was 7.32%. The most frequent healthcare-associated infections were bloodstream infection (65.4%) and urinary tract infection (22.5%). The mortality rate was 2.1%. The most frequent pathogens were coagulase-negative staphylococci (36.1%) and Klebsiella pneumoniae (29.3%). [9]

CONCLUSION

The most common healthcare associated infections in the neonatal intensive care unit are the blood borne infections.

REFERENCES

1. Bartels DB, Schwab F, Geffers C, Poets CF, Gastmeier P. Nosocomial infection in small for gestational age newborns with birth weight < 1500 g: a multicentre analysis. Arch Dis Child Fetal Neonatal Ed 2007; 92: F449-53.
2. Couto RC, Pedrosa TM, Tofani Cde P, Pedroso ER. Risk factors for nosocomial infection in a neonatal intensive care unit. Infect Control Hosp Epidemiol 2006.
3. Szczapa J, Wojsyk-Banaszak I. Profilaktykazakażeńszpitalnych u noworodków. Zakażenia 2004; 1: 96-104.
4. Srivastava S, Shetty N. Healthcare-associated infections in neonatal units: lessons from contrasting worlds. J Hosp Infect. 2007 Apr;65(4):292-306.
5. Bang AT, Bang RA, Baitule SB, Reddy MH, Deshmukh MD. Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. Lancet 1999.
6. Phillips JR, Karlowicz MG. Prevalence of Candida species in hospital-acquired urinary tract infections in a neonatal intensive care unit. Pediatr Infect Dis J 1997.
7. Stoll BJ, Hansen N, Fanaroff AA, et al. To tap or not to tap: high likelihood of meningitis without sepsis among very low birth weight infants. Pediatrics 2004.
8. Crivaro V, Bogdanović L, Bagattini M, Iula VD, Catania M, Raimondi F, Triassi M, Zarrilli R. Surveillance of healthcare-associated infections in a neonatal intensive care unit in Italy during 2006-2010.
9. Sadowska-Krawczenko I, Jankowska A, Kurylak A. Healthcare-associated infections in a neonatal intensive care unit. Arch Med Sci. 2012 Nov 9.