

Nosocomial Infections in the Neonatal
Intensive Care Unit of Obstetrics and
Gynecology Hospital, Ain Shams
University: Incidence and Risk
Factors

Thesis

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in Pediatrics*

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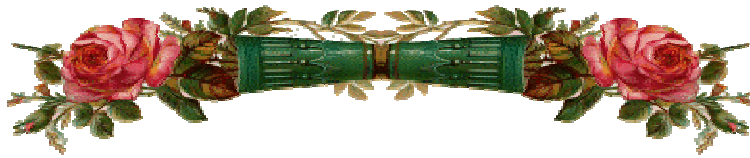
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List of Abbreviations

AAP	American Academy of Pediatrics
ALT	Alanine transaminase
APIC	Association for professionals in infection
APIC	Association for Professionals in Infection Control and Epidemiology
AST	Aspartate transaminase
BPD	Bronchopulmonary dysplasia
BUN	Blood urea nitrogen
BW	Birth weight
CBC	Complete blood count
CDC	Centers for disease control
CHG	Chlorhexidine gluconate
CMV	Cytomegalovirus
CNS	Central nervous system
CONS	Coagulase-negative staphylococci
CS	Cesarean section
CSF	Cerebrospinal fluid
CT	Computed tomography
ELBW	Extremely low birth weight
EOS	Early onset sepsis
FFP	Fresh frozen plasma
GA	Gestational age
GBS	Group B streptococci
G-CSF	Granulocyte colony stimulating factor
GIT	Gastrointestinal tract
Gm-CSF	Granulocyte macrophage colony stimulating factor
HAIs	Hospital acquired infections
HCWs	Healthcare workers
HIV	Human immunodeficiency virus
HWS	Hand wash scoring

List of Abbreviations (Cont.)

IgA	Immunoglobulin-A
IgE	Immunoglobulin-E
IgG	Immunoglobulin-G
IgM	Immunoglobulin M
IVIG	Intravenous immunoglobulin
LOS	Late onset sepsis
LP	Lumbar puncture
MPV	Mean platelet volume
MRSA	Methicillin-resistant staphylococcus aureus
NBT	Nitroblue tetrazolium
NEC	Necrotizing enterocolitis
NICU	Neonatal intensive care unit
NIIs	Nosocomial infections
NK	Natural killer
PCR	Polymerase chain reaction
PDW	Platelet distribution width
PMN	Polymorphonuclear
PPHN	Persistent pulmonary hypertension of the newborn
PROM	Premature rupture of membrane
PT	Prothrombin time
PTT	Partial thromboplastin time
RDS	Respiratory distress syndrome
RSV	Respiratory syncytial virus
TPN	Total parenteral nutrition
U/S	Ultrasonography
UTI	Urinary tract infection
V.D.	Vaginal delivery
VLBL	Very low birth weight
VRE	Vancomycin resistant enterococci
WBC	White blood cell



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*Mohamed Eliwa Ahmed
2007*



A decorative floral frame with a central yellow oval containing the letter 'E'. The frame is adorned with intricate green, pink, and orange floral patterns.

E

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ
صدق الله العظيم

سورة البقرة آية (32)

Introduction

To define a single infection we will use the same criteria described in the previous multicenter studies conducted in Italy, and the recommendations of the Center for Disease Control (CDC), Atlanta (*Stolfi et al., 1999 and Garner et al., 1988*). Occurrence of positive symptoms and cultures within 48 hrs after birth was defined as infections transmitted vertically from the mother to the fetus or the newborn (perinatal infections). Infections that are manifested with suggestive clinical symptoms and/or positive culture 48 hrs after birth or more were defined as infections acquired by horizontal transmission. In these latter cases, if the patient has positive symptoms and/or bacteriologic cultures at least 48 hrs after admission to the Neonatal Intensive Care Unit (NICU), the infection is defined as Hospital Acquired Infections (HAIs) or Nosocomial Infections (NIs). When a horizontal infection develops within 48 hrs of admission to the NICU, it is defined as infection acquired at home or in another hospital. The rate of nosocomial infections varies from one NICU to another (*Craft et al., 2001 and Zafar et al., 2001*) according to many factors. The risk factors (*Gotoff, 2004 and Yancey et al., 1996*) for nosocomial infections in NICU include: neonatal factors such as (prematurity, low birth weight, resuscitation at birth particularly with the use of endotracheal intubation and umbilical vessel catheterization, presence of coexisting diseases, congenital defects such as meningo-myelocele, prolonged use of broad spectrum antibiotics, and

Introduction and Aim of the Work

presence of congenital immune defects or asplenia), maternal factors such as difficult or traumatic delivery, and personnel and equipment factors such as (doctors and nurses risk factors, improper hand washing techniques, the use of mechanical ventilators, oro/nasogastric tubes, central venous catheters, and umbilical catheters).

Aim of the Work

The aim of this study is to determine the incidence rate and the risk factors associated with the development of nosocomial infections in the neonatal intensive care unit of Obstetrics and Gynecology Hospital, Ain Shams University.

Nosocomial Infections

Definitions:

(1) The problem of acquired infection in the NICU is an ongoing concern for neonatologists and other caregivers. Definitions have been established by the Centers for Disease Control and Prevention. These require a positive culture at more than 48 h of life and/or clinical signs or symptoms of infection. Such infections cause increased mortality and morbidity, such as necrotizing enterocolitis (NEC) and bronchopulmonary dysplasia, and increase hospital costs (*Suara et al., 2000*).

(2) The United States Department of health and Human Services Centers for Disease Control and Prevention defines nosocomial infection as an infection during hospitalization that was not present or incubating at the time of admission (*Lopez et al., 2002*). Most authors describing neonatal infection find it convenient to use the term “early-onset” and “late-onset” infection. Early-onset infections are confirmed infections in the first three days of life, whereas late-onset infections occur after the third day. Nosocomial infection is equivalent to late-onset, or infection after the first 72 hours of life (*Craft and Finer, 2001*).