Neonatal and Pediatric Medicine
ISSN: 2572-4983
Ahmad, Neonat Pediatr Med 2023, 9:4
Mini Review
Open Access

Comprehensive Middle Eastern Study on Consolidated Inflammation Related to Prenatal Care

Safaa Ahmad*

Department of Neonatal and Pediatric, School of Medicine, Syrian Arab Republic

Abstract

Healthcare-associated conjunctivitis (HAC) is associated with serious ophthalmic complications in newborns, including blindness. This 3-year retrospective descriptive study, conducted between 2019 and 2021, identified the most common bacteria associated with her HAC in neonates from Middle East tertiary care hospitals. Inclusion criteria were defined based on the Centers for Disease Control and Prevention (CDC) guidelines for the diagnosis of HAC in newborns. When HAC was clinically suspected, conjunctival swabs were obtained from neonates and sent to the microbiology laboratory according to standard protocols. Univariate analysis was performed on the included samples. A total of 79 cases met the inclusion criteria and were retrospectively reviewed. Descriptive analysis showed that Pseudomonas aeruginosa was the major cause of HAC, accounting for 25% (20 cases), Approximately 9% of analyzed cases were positive for S. aureus. Oral gastric feeding was the most common factor (94%) associated with HAC, followed by respiratory distress syndrome (IBS) and prematurity in 70% and 64% of cases, respectively. In summary, HAC is a worrying health problem, commonly caused by bacteria, including Gram-negative bacteria. Therefore, physician awareness, effective communication with microbiologists, and implementation of infection control recommendations, including hand hygiene, can minimize this problem and avoid serious complications of HAC.

Keywords: Healthcare-associated conjunctivitis; Jazan; Healthcare-associated infections; Neonates

Introduction

One of the most common eye diseases in newborns is conjunctivitis. Occurs in about 1 to 2% of newborns. It is considered a major public health concern because of its long-term effects and potentially serious symptoms. Newborns are a vulnerable group at risk of developing conjunctivitis due to their underdeveloped tear ducts, immature immune system, and frequent colonization of the conjunctiva [1]. Additionally, hospitalized neonates are at increased risk of developing conjunctivitis due to various neonatal care procedures, such as the use of eye patches for phototherapy and exposure to nosocomial infections. Several outbreaks of healthcare-associated conjunctivitis (HAC) have occurred in neonatal and day care centers worldwide. Therefore, HAC is considered one of the most common nosocomial infections (HAIs) [2].

HAC can be defined as an infection that develops 48 hours after admission and is not associated with maternal illness. Therefore, prompt diagnosis is essential to avoid complications. Gram staining findings can be used for preliminary diagnosis, but conjunctiva culture results must be obtained to confirm a definitive diagnosis of bacterial conjunctivitis [3]. Geographic location, prophylactic antibiotics, and specific microbial infections in healthcare facilities all influence the prevalence and extent of HAC infectious agents. However, Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus, and other Gram-positive and Gram-negative bacteria are common in infections.

Reports on HAC from the Middle East are limited, and this study aimed to identify the most common bacterial pathogens and associated factors that commonly cause bacterial HAC [4].

Materials and Methods

Population and Study Design

Between January 2019 and December 2021, this retrospective study was conducted in the neonatal ward of a tertiary care hospital in the state of Jazan, Middle East. We included neonates (<28 days) who had culture-proven conjunctivitis and spent more than 48 hours in hospital. Infants with obvious congenital ocular abnormalities or those with more than one organism recovered from the same specimen were excluded [5]. Patient information includes demographics (gestational age, sex, and birth weight), birth history (type of delivery and multiple births), and length of stay in the neonatal intensive care unit (NICU), equipment use (days of mechanical intubation or consecutive positives). Airway pressure and phototherapy), sepsis and short-term clinical outcome. Cases of neonatal HAC were defined based on previously published diagnostic criteria established by the Centers for Disease Control and Prevention (CDC)/National Healthcare Safety Network. Molecular testing was not performed at the time of this study, so the pathogens studied included only culturable bacteria [6].

Microbiological techniques

When clinically indicated, eye samples were collected using culture swabs by nurses in the neonatal unit (Becton Dickinson Microbiology Systems, Sparks, MD, USA). Swabs were shipped to microbiology laboratories for inoculation of various growth media (including blood, chocolate, and commercial MacConkey agar plates). The plates were incubated by him for three days and checked daily for bacterial growth. Additionally, a Gram-stained swab was prepared for initial analysis [7]. Conventional biochemical tests were used for initial identification (e.g., the coagulase test was used to distinguish S. aureus from S. aureus coagulase-negative, and the oxidase test was used in the case of Pseudomonas spp. Organisms were then further identified and

***Corresponding author:** Safaa Ahmad, Department of Neonatal and Pediatric, School of Medicine, Syrian Arab Republic, E-mail: Sweet.safaao@gmail.com

Received: 01-Apr-2023, Manuscript No: nnp-23-91500; **Editor assigned:** 07-Apr-2023, Pre-QC No: nnp-23-91500 (PQ); **Reviewed:** 21-Apr-2023, QC No: nnp-23-91500; **Revised:** 24-Apr-2023, ManuscriptNo:nnp-23-91500(R); **Published:** 29-Apr-2023, DOI: 10.4172/2572-4983.1000296

Citation: Ahmad S (2023) Comprehensive Middle Eastern Study on Consolidated Inflammation Related to Prenatal Care. Neonat Pediatr Med 9: 296.

confirmed using the automated systems MicroScan (West Sacramento, CA, USA) and Vitek 2 (bioMérieux, Durham, NC, USA) [8].

Ethical Approval

This study was approved by the Jazan Health Ethics Committee of the Ministry of Health in the Middle East with grant number #2134 dated 28 April 2021. This study was conducted in accordance with the ethical guidelines of the Declaration of Helsinki and the local guidelines of the Middle East Bioethics Committee [9]. Data were collected for clinical purposes and are available in patient records and/or laboratory databases. The data collected will be kept confidential and will only be used for research purposes within the scope of this study. We also do not record participant data or other methods of identification [10].

Discussion

Despite being a major public health concern and common nosocomial infection, there are few studies of HAC in neonates in our community. Therefore, we wanted to describe our experience in his 500-bed tertiary hospital in the Middle East (2019-2021) and report on the most common bacteria associated with her HAC in neonates. Due to the lack of local criteria or protocols defining neonatal HAC, we made the diagnosis based on the aforementioned CDC diagnostic criteria. With this in mind, in 2019, when he conducted a two-year study in the Central and Middle East region and found that the most commonly isolated bacteria were Gram-positive (60%), we found different results. Pictures from Yemen were similar to those of Faraz et al. A report that researchers found that cases of neonatal conjunctivitis were commonly caused by Gram-positive bacteria (57%). The current study found that 66% of neonatal HAC cases were caused by Gram-negative bacteria. This difference is due to the use of CDC guidelines to define neonatal HAC. Our results are consistent with various reports from India. Results of these studies reported that 60% to 70% of cases had a Gram-negative etiology of her HAC. Therefore, as there is no local or regional protocol for defining neonatal HAC in our region, health officials will need to adapt the current definition of the CDC criteria, and depending on the current prevalence of the etiology, future we believe that we can consider improving the profile of agents and antibiotic resistance.

Our study has many limitations. Due to the lack of molecular testing, we were unable to identify other important bacteria such as Chlamydia or Gonococcus species, or indeed other microorganisms, including viral and fungal pathogens. Another major limitation of this study was the inability to obtain information on the antibiotic susceptibility profile (ASF). This is an addition that makes this work very rich. In addition, we did not follow up the included patients. As a result, the long-term consequences of HAC in neonates could not be established. In addition, it is worth noting that some organisms reported as causative agents of infection were difficult to confirm or difficult to culture (e.g., staphylococcal coagulase-negative). However, this report is one of the few published in our region and provides insight into one of the most common issues in neonatal care for neonatologists, microbiologists, ophthalmologists, and infection control professionals. I think I will provide it to Therefore, to improve our understanding of bacterial HAC in neonates; further national studies should be performed in larger populations with control groups that include the reported bacterial ASP.

Conclusions

This study evaluated the most common bacterial causes of HAC in neonates based on CDC criteria. Gram-negative bacteria were common (66%), with Pseudomonas aeruginosa being the most common pathogen, followed by Escherichia coli and Klebsiella pneumonia (25%, 11.5%, and 11.5% of cases, respectively). S. aureus was the most commonly isolated (9%) Gram-positive species, accounting for 34% of all cases. Future studies involving larger populations and antibiotic profiles are warranted to provide a better understanding of HACs in the Middle East.

References

1. Grignon A, Filion R, Filiatrault D, Robitaille P, Homsy Y, et al. (1986) Urinary tract dilatation in utero: classification and clinical applications. Radiol 160: 645-647.
2. Ocheke IE, Antwi S, Gajjar P, McCulloch MI, Nourse P (2014) Pelvi-ureteric junction obstruction at Red Cross Children's Hospital, Cape Town:a six year review. Arab J Nephrol Transplant 7: 33-36.
3. Capello SA, Kogan BA, Giorgi LJ Kaufman RP. Prenatal ultrasound has led to earlier detection and repair of ureteropelvic junction obstruction. J Urol (2005) 174: 1425-1428.
4. Johnston JH, Evans JP, Glassberg KI, Shapiro SR (1977) Pelvic hydronephrosis in children: a review of 219 personal cases. J Urol 117: 97-101.
5. Williams DI, Kenawi MM (1976) The prognosis of pelviureteric obstruction in childhood: a review of 190 cases. Eur Urol 2: 57-63.
6. Lebowitz RL, Griscom NT (1977) Neonatal hydronephrosis: 146 cases. Radiol Clin North Am 15: 49-59.
7. Hubertus J, Plieninger S, Martinovic V, Heinrich M, Schuster T, et al. (2013) Children and adolescents with ureteropelvic junction obstruction: is an additional voiding cystourethrogram necessary? Results of a multicenter study. Wor J Urol 31: 683-687.
8. Swenson DW, Darge K, Ziniel SI, Chow JS (2015) Characterizing upper urinary tract dilation on ultrasound: a survey of North American pediatric radiologists' practices. Pediatr Radiol 45: 686-694.
9. Hussain, Walid A, Jeremy D (2019) Approaches to Noninvasive Respiratory Support in Preterm Infants: From CPAP to NAVA. NeoReviews 20:213–221.
10. Bordessoule, Alice (2012) Neurally Adjusted Ventilatory Assist Improves Patient–Ventilator Interaction in Infants as Compared with Conventional Ventilation. Pedia Res 72:194–202.