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Revealing Congenital Urachal Anomalies in Neonatal Acute Omphalitis

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INTRODUCTION
Acute omphalitis (AO) is one of the most common infections in the neonatal period. It is usually sporadic, though several risk factors are known, most commonly congenital urachal anomalies, which result from incomplete obliteration of the urachus. The objective of the study was to analyze clinical, laboratory and ultrasound (US) imaging features of newborns with AO and to define the most common congenital urachal anomalies that can present as neonatal AO and be diagnosed with umbilical US imaging.

PATIENTS AND METHODS
The study included newborns aged up to 44 postconceptional weeks with AO and congenital urachal anomalies (persistent patent urachus, urachal cyst, urachal diverticulum and urachal sinus).

RESULTS
The study included 226 newborns, 132 (58.4 %) male and 12 (5.3 %) preterm. Their mean age was 9.7 days. The most frequent local signs of AO were umbilical discharge (151, 66.8 %), periumbilical erythema (120, 53.1 %) and periumbilical edema (64, 28.3 %). The most frequently isolated bacteria, alone or in combination with other bacteria, was Staphylococcus aureus (120 newborns, 73.2 %). Antibiotic treatment was needed in 148 (65.5 %) newborns; most frequently intravenous flucloxacillin and gentamicin. US examination of the umbilical region was performed in 164 (72.6 %) newborns with AO and congenital urachal anomalies were found in 96 (58.5 %) newborns. The most frequent pathology was persistent patent urachus, found in 84 (87.5 %) newborns.

CONCLUSIONS
AO, one of the most common infections in the neonatal period, could be causally related to congenital urachal anomalies, especially persistent patent urachus, in more than half cases. US imaging of the umbilical region represents the diagnostic modality of choice for detecting underlying urachal pathology.
None declared

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Identification of bacterial pathogens and antimicrobial susceptibility of early-onset neonatal sepsis (EONS) in Palestinian hospitals: A retrospective cohort study

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Background
Antibiotic resistance is a global concern, and it affects various bacterial pathogens, including those causing neonatal sepsis. The aim of this study was to determine the incidence, bacteriological profile and antibiotic susceptibility patterns of culture-positive early-onset sepsis (EOS) among a cohort of neonates in the Occupied Palestinian Territories (oPt).

Methods
This retrospective cohort study was conducted on neonates with proven positive blood cultures or positive cerebrospinal fluid (CSF) admitted to eight neonatal intensive care units (NICU) in the West Bank, oPt between January 2017 and December 2019. Data on microbiology laboratory blood cultures were retrieved from NICU registers and medical records were reviewed to obtain data on mothers and neonates.

Results
Among the 95,319 neonates admitted to the eight NICUs during the study period, we detected 292 neonates with culture-proven EOS, resulting in an incidence rate of 3 per 1000 live births. The most common gram-positive bacteria identified among neonates were α hemolytic Streptococcus (11.6%), CoNS (11.3%), and GBS (8.6%). E. coli (15.1%) and Klebsiella species (15.1%) were the most common gram-negative bacteria, followed by Acinetobacter (7.9%).
Findings revealed gram-positive organisms were mostly resistant to ciprofloxacin (57.1%) and Gentamycin (37.7%), and highly sensitive to vancomycin (97.9%), meropenem (89.2%), amikacin (82.6%) and tazocin (82.4%). Gram-negative organisms showed the highest antibiotic resistance to ampicillin (87.2%), amoxicillin-clavulanate (81.9%), and highest sensitivity to meropenem (82.0%), Tazocin (70.7%), and amikacin (66.4%).

Conclusion
Our findings provide proper guidelines for the selection of empirical antimicrobial agents in Palestinian hospitals and suggest the need for future studies to assess further the epidemiology of neonatal sepsis and antibiotic susceptibility patterns in the oPt.

None declared

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THE COST-EFFECTIVENESS OF RISK FACTOR-GUIDED PROPHYLAXIS WITH PALIVIZUMAB AGAINST SEVERE RESPIRATORY SYNCYTIAL VIRUS INFECTION IN MEXICAN INFANTS BORN AT 32–35 WEEKS' GESTATIONAL AGE

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INTRODUCTION
The cost-effectiveness of palivizumab for preventing respiratory syncytial virus hospitalisation (RSVH) in Mexican infants born at 32–35 weeks' gestational age (wGA) has not been assessed. We have conducted the first evaluation of risk factor-guided palivizumab prophylaxis in this population.

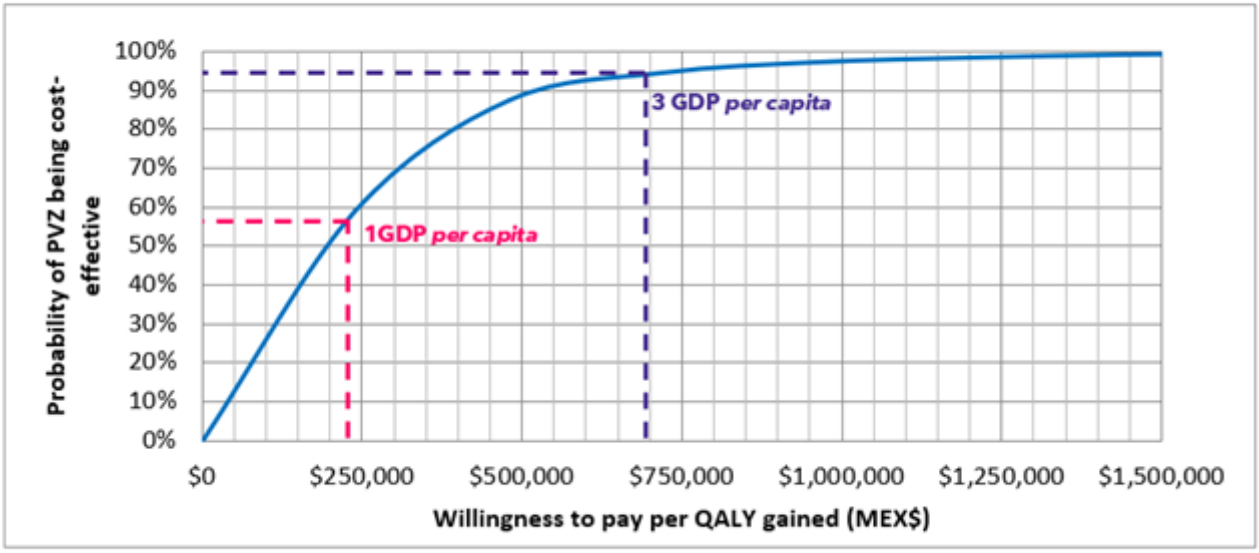
MATERIALS AND METHODS
Infants born 32–35wGA identified as high- or moderate-risk for RSVH by the 3-risk factor (birth in relation to RSV season start; household/maternal smoking; siblings/daycare) International Risk Scoring Tool were considered in a decision tree which compared palivizumab to no prophylaxis. The potential primary outcomes were RSVH, medically-attended but non-hospitalised RSV-infection (NH-MARI), or remaining uninfected/non-medically attended. Mortality (0.43%) was applied only to infants admitted to intensive care (18.5% of RSVHs). All survivors could experience respiratory morbidity for ≤18 years. Palivizumab reduced RSVH by 82.2% (baseline: 6.3%). The healthcare provider perspective was considered over a lifetime time horizon (3.0% discounting) with vial sharing (5% wastage) permitted (note: palivizumab vials are single use only). Medical costs were extracted/calculated from available Mexican sources.

RESULTS
For moderate- and high-risk infants, the cost per quality-adjusted life year (QALY) was MEX$199,055 (USD$11,870). Probabilistic sensitivity analyses (10,000 iterations) resulted in a mean MEX$205,688/QALY (USD $12,265), with a 56.4% probability of palivizumab being cost-effective at a willingness-to-pay (WTP) threshold of MEX$231,395 (USD$13,798, 1 gross domestic product [GDP] per capita); this improved to 94.0% at a WTP of x3 GDP per capita (MEX$694,185, Figure).

CONCLUSIONS
From the Mexican healthcare provider perspective, palivizumab prophylaxis of moderate- and high-risk 32–35wGA infants is cost-effective versus no intervention.
BP and XCE have received research funding and/or compensation as advisors/lecturers from AstraZeneca and Sanofi. BRG, IK, and JF employers have received payment from AstraZeneca for work

on various projects. DN has received compensation as advisor/lecturer from AbbVie, Sanofi Pasteur, MSD, GSK, Pfizer, and AstraZeneca. JET, FP and AG-O have nothing to disclose. Financial support for this study was provided by AstraZeneca. All authors contributed to the development of the publication and maintained control over the final content.

Figure: Cost-effectiveness acceptability curve for palivizumab prophylaxis of moderate- and high-risk 32–35wGA Mexican infants



PVZ: palivizumab; QALY: quality adjusted life year

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CONGENITAL CMV INFECTION

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INTRODUCTION

The clinical manifestations of cCMV are numerous and can affect almost all organs and organ systems. At the same time, 90% of infected children are asymptomatic. The search for cCMV is based on many non-specific symptoms. Targeted screening for cCMV includes lenticulostriate vasculopathy(LSV) as a neurological sign, noting that this should be considered on a case-by-case basis. Lenticulostriatal vasculopathy refers to the ultrasound appearance of hyperechoic linear or branching tubular streaks in newborns'thalamus or basal ganglia.

MATERIAL AND METHODS

The research was conducted at the Clinical Center of the University of Sarajevo for 24 months from 01.01.2020 until 31.12.2020. It included 604 term and premature babies. All were tested for cCMV by PCR from urine and underwent brain ultrasound. The correlation of LSV and cCMV was analysed.

RESULTS

Out of 604 tested children, 232 (38.4%) had LSV. In 84/604(13.9%) cases, urine was positive for CMV. LSV was present in 43/84 (51.2%)positive subjects. 14/84 (16.6%) had symptomatic cCMV, and in this group, 9/14(64.2%) children had LSV. In term children, the correlation between LSV and a positive test for CMV is significant ($p<0.023$), while in preterm children, it is not significant ($p<0.401$).

CONCLUSIONS

A large number of cCMV were detected based on LSV as a marker. There is a significant correlation between LSV and cCMV in term infants but not in premature infants. In premature infants, there is a significant correlation between LSV and twin pregnancy, preeclampsia, BPD, EOS, IVH grade I/II, VCC, and other anomalies, which indicates that LSV in premature infants is a marker of brain damage caused by various harmful factors.

"None declared"

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Ophthalmia Neonatorum: Analysis of Factors Influencing the Strategies of Prevention in European Countries

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INTRODUCTION: Ophthalmia neonatorum (ON) is a conjunctivitis that occurs within the first month of life, most caused by bacteria that cause sexually transmitted diseases (STDs) and can cause serious complications. Measures to prevent ON include local application of antiseptic or antibiotic to the newborn's conjunctiva in the first hours after birth. Despite its effectiveness, questions arise about the rationale of this approach due to low incidence of ON, side effects of active substances and cost-effectiveness. Measures, such as screening programs for STDs in pregnant women, are also available. Preventive strategies for ON vary across European countries, and often differ among healthcare institutions. The purpose of this study was to analyze the factors influencing the NO prevention strategy in European countries.

MATERIALS AND METHODS: We conducted an analysis of healthcare institution approaches in European countries and influencing factors, aiming to gain comprehensive overview of ON preventive measures. We conducted a multicenter, cross-sectional, observational, epidemiological study. Data were collected through a questionnaire addressed to perinatal and neonatal societies of all European countries. Additionally, we obtained data through a literature review on the management of ON in European countries.

RESULTS: We collected 98 responses for 15 different European countries. The responses indicated that 41% of healthcare institutions carry out ON prophylaxis. Forty-nine percent of respondents stated their country follows a national protocol, 38% follow an institutional protocol, while 14% lack protocol for ON prophylaxis implementation. The primary reasons for not implementing prophylaxis were low incidence of ON and low incidence of gonococcal or chlamydial infections in pregnant women. Thirty-three percent of respondents conduct screening tests for STDs in pregnant women. Additionally, data from a literature review showed that some northern regions waived general prophylaxis, but other countries still implement general prophylaxis, although without clear protocol.

CONCLUSIONS: The research has provided an improved insight into the implementation of preventive measures for ON in European countries. We have also identified and evaluated the key factors significantly influencing the implementation and methods of ON prevention. The findings of the study could contribute to standardizing guidelines for preventive programs for pregnant women and newborns.
None declared

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Venous approaches in neonates

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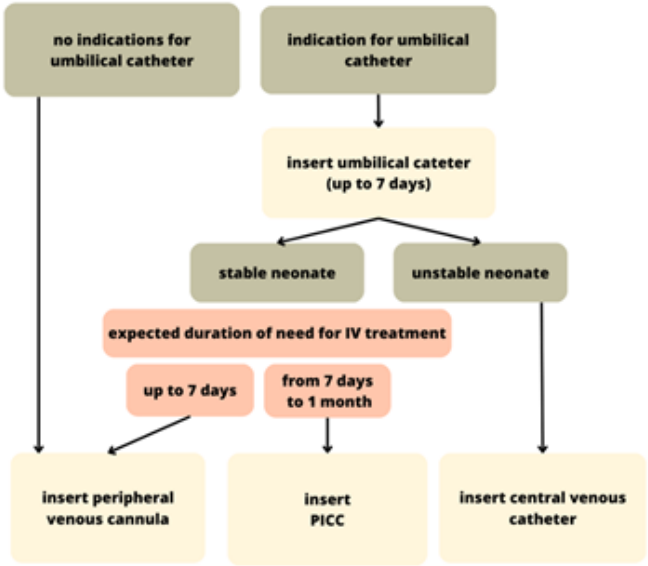
INTRODUCTION: Venous access is essential for safe and effective intravenous treatment of sick neonates. The two possible options of venous access are peripheral intravenous cannula and central venous catheter (CVC). CVC can be inserted through the umbilical vein (umbilical catheter), larger veins (femoral, jugular, subclavian), or a peripheral vein (PICC). We aimed to prepare the algorithm for selecting the suitable venous access in neonates according to characteristics, advantages of use and possible complications of venous access.

MATERIAL AND METHODS: We used a descriptive method with a systematic literature search to evaluate the main characteristics, benefits of use and possible complications of venous access. The search included literature published since 2013 in Slovenian and English. Keywords were neonate, peripherally inserted venous line, PICC, central venous catheter and umbilical catheter. We used PubMed and DiKUL search engines and searched CINAHL and Cochrane Library databases. 21 articles were included in the analysis.

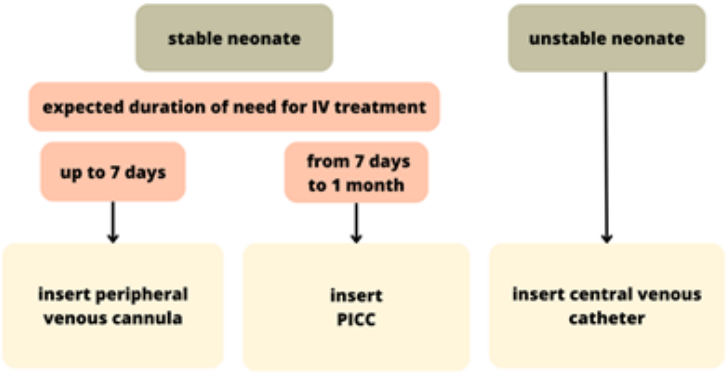
RESULTS: Venous access varies according to site of insertion, tip endpoint, material, size, number of lumens, advantages and complications of the catheter. The choice of venous access should depend on the clinical status of the neonate. The first choice of venous access in the critically ill neonate is the umbilical catheter, which can be used for up to one week. If the neonate is still unstable after removal of the umbilical catheter, the CVC introduced in the large vein should be used. If the neonate is stable, the decision about the intravenous approach should be based on the expected duration of use and the type of infusion solution. A PICC line is used if the infusion is expected to last more than seven days or if fluids incompatible with the peripheral route are to be administered.

CONCLUSION: Venous access devices differ by site of insertion, tip endpoint and other characteristics. As a result, they have different purposes and complications. Decisions about venous access should be based on the characteristics of the catheter and the patient. As an advocate of the best options for the patient, the nurse can be involved in the decision about the venous access for the sick neonate.
none declared

a) choice of appropriate venous acces after birth



b) choice of appropriate venous acces if umbilical catheterisation is not possible



source: Barone et al., 2023; Keir et al., 2020; Ainsworth & McGuire, 2015; Pittirutti & Scoppettoulo, 2016