

85% had more than 4 risk factors, the most common: NICU admission(100%), central catheter(100%), parenteral nutrition(93%), broad-spectrum ATB use(86%) and IMV(71%). The most frequent associated pathology was catheter-related infection(43%) and necrotizing enterocolitis(22%). No CNS involvement was identified in any case.

Conclusions Systemic prophylaxis with fluconazole has been an effective measure for the reduction of invasive fungal infection in our unit, with a decrease between 40–70%. However, optimization of this strategy is necessary, focusing on those at highest risk (< 1000g and/or ≤27weeks).

1172 A 7-YEARS RETROSPECTIVE STUDY OF NOSOCOMIAL CANDIDA INFECTION IN TERTIALLY NICU

doi:10.1136/archdischild-2012-302724.1172

U Godula-Stuglik, J Balicz, MWB Kwiatkowska-Gruca, A Pukas. *Department of Pediatrics, NICU, Zabrze, Poland*

Background Nosocomial Candida infections (NCI) with dominant *C. albicans* account for 6–18% of late-onset sepsis in NICU, with mortality rate 22–32% and increase health care costs.

Aim Evaluation morbidity and mortality rate of neonatal NCI, considering sex, GA, BW, perinatal risk factors, occurrence of other diseases, types of Candida, number of NCI episodes.

Material and Methods The analysis involved 70 newborns (41 boys, 29 girls), 27 ELBW, 20 VLBW, 11 LBW and 12 >2.5 kg, treated within 2002–7 years (4.2% of all), all with flukonazole prophylaxis. Mycological examination was based on Sabouroud medium and using Vitek 2 apparatus.

Results 103 cases of NCI (46 single, 4 double, 7³ 3) were diagnosed between 8 and 117 day of hospitalization (27% ≤15th, 32% between 16th and 30th, 41% >30th day). Eighteen types of *C.* were isolated (44% in blood), most often *albicans* (26%), *sake* (25%) and *lusitanae* (18%). The significant dependence was stated between newborns' death and their GA and number of *C.* episodes. Presence of central catheters, MV, bacterial sepsis and ventilator associated pneumonia, total parenteral nutrition and severe RDS, BPD, IVH, NEC were founded as major risk factors for neonatal NCI.

Conclusions

1. Fetal maturity and number of NCI episodes determine the prognosis in newborns infected due to Candida.
2. Risk factors must be evaluated carefully in all sick newborns, because of longer NICU stay and necessity of invasive procedures.

1173 BURKHOLDERIA GLADIOLI SEPSIS IN NEWBORNS

doi:10.1136/archdischild-2012-302724.1173

¹A Dursun, ¹A Zenciroglu, ¹BS Karagol, ¹H Nilay, ¹N Okumus, ¹S Beken, ²N Gol, ³G Tanir. ¹Neonatology; ²Microbiology; ³Pediatric Infectious Diseases, Dr. Sami Ulus Maternity and Children's Health and Diseases Training and Research Hospital, Ankara, Turkey

Background and Aim *Burkholderia gladioli* is a rare cause of bacteraemia and sepsis in patients without predisposing factors like chronic granulomatous disease, cystic fibrosis or immunosuppressive disorders. There is little known about *B. gladioli* infections in newborns. The aim of this study was to evaluate the features of *B. gladioli* infections in newborns.

Methods Clinico-pathologic characteristics, patterns of antimicrobial susceptibility, predisposing factors and outcomes of *B. gladioli* bloodstream infections of newborn patients were analysed retrospectively from 2008 to 2011.

Results During the 3-year study period, *B. gladioli* was isolated from blood cultures of 14 patients (3.7 per 1000 admissions). Five out of 14 (35.7%) cases have a positive blood culture at the time of initial admission. Primary diagnoses of neonates were severe major

congenital anomalies, congenital leukemia, prematurity with respiratory distress syndrome, pneumonia and parapneumonic pleural effusion. Eleven of the 14 patients (78.6%) had undergone at least one invasive procedure and 71.4% of the patients had undergone two or more of invasive procedures. The most susceptible antimicrobial agents were amikacin, gentamicin, imipenem, ciprofloxacin, trimethoprim/sulphamethaxazole and ceftriaxone. The overall in-hospital mortality rate was 21.4%. The mortality rate was 7% for *B. gladioli* infections.

Conclusions *B. gladioli* might be a causative microorganism of both early neonatal and nosocomial sepsis in newborns. To our knowledge, this is the first report of *B. gladioli* infection in newborns. Although it seems to have a low pathogenic potential and insidious clinical course in newborns, resistance patterns to antibiotics may be a problem. Mortality was mainly associated with underlying diseases.

1174 SEPSIS AMONG PRETERM INFANTS WITH BIRTH WEIGHT ≤750 G: EXPERIENCE OF A MEDICAL CENTER IN NORTHERN TAIWAN

doi:10.1136/archdischild-2012-302724.1174

^{1,2}MC Chiang, ¹OW Chan, ¹YL Chau, ^{1,2}JJ Lin, ¹R Lien, ¹PH Yang. ¹Pediatrics, Chang Gung Memorial Hospital; ²Graduate Institute of Clinical Medical Sciences, Chang Gung University College of Medicine, Taoyuan, Taiwan R.O.C.

Background Sepsis is a major cause leading to neonatal mortality and morbidity, particularly for tiny preemies. The purpose of this study aimed to compare outcome between infants with birth weight (BBW) ≤750 g having culture-positive sepsis and infants without any positive culture.

Methods This was a retrospective cohort study of infants with BBW ≤750 g admitted to Chang Gung Children's Hospital between January 2006 and December 2010. Sepsis was defined as infants had clinical signs and positive blood culture results. Outcome, pathogens and clinical data were collected.

Results 154 infants were enrolled; the gestational age (GA) and BBW were 25.1±1.9 weeks and 639.6±88.5 g (mean±SD), respectively. 46 patients (29.9%) had sepsis and the incidence of sepsis was 5.2 episodes per 1000 patient days. There were 62 episodes of sepsis involving 66 pathogens during the study period. 38 gram-positive pathogens (57.6%), 22 gram-negative pathogens (33.3%) and 6 fungal infection (9.1%) were identified. The major causative pathogens were coagulase negative staphylococcus (n=24), *Escherichia coli* (n=7) and *klebsiella pneumoniae* (n=7). Infants received patent ductus arteriosus ligation or had retinopathy of prematurity requiring therapy were associated with developing sepsis thereafter. There was no significant difference in GA, BBW, gender, Apgar scores, intraventricular hemorrhage, bronchopulmonary dysplasia and mortality between sepsis and non-sepsis groups. The mortality rate was 42.9%, and sepsis related mortality accounted for 14.5% of mortality in the current study.

Conclusions One third of infants with BBW ≤750 g had sepsis. Based on the finding of identified pathogens, nosocomial infection was still the major cause for sepsis.

1175 PATHOGENS WHICH CAUSING NEONATAL INFECTION IN MECONIUM STAINED AMNIOTIC FLUIDS

doi:10.1136/archdischild-2012-302724.1175

M Kosim, A Eka Rini, G Irawan Sarosa, A Nur Radityo. *Neonatology Division, Department of Pediatrics, Faculty of Medicine, Diponegoro University/Dr. Kariadi Hospital, Semarang, Indonesia*

Background Few studies considered that amniotic fluid is sterile but some others mentioned that contains pathogens. Even though not all meconium stained amniotic fluids MSAF develop into

neonatal infection, it is mentioned in some studies that MSAF is a risk factor for neonatal infection. Knowledge about the types of pathogens is still limited and pathogens is curiosity.

Objective Determine pathogens contain in MSAF which lead to neonatal infection in newborn with MSAF.

Method Cohort study. Subjects newborns with MSAF delivered in RS. Dr. Kariadi from October 2009 – March 2010 with inclusion criteria. MSAF was determined by KAPPA test (0.74) and contain one of stool metabolite. Group II was babies with clear amniotic fluid. Examination of variables were taken on the first day. Statistical analysis used chi square, Mann whitney, and relative risk (CI 95%).

Result Subjects were 70 babies. Group I: 35 baies and Group II: 35. Babies with MSAF and viscous amniotic fluids have 10 x higher risk to be infected (95%CI=1.3–74.0; p=0,003). Incidence of neonatal infection by Gram staining: Gram (+) has RR 1.4 (95%CI=0.3–6.8; p=0.6) and incidence of both Gram (+) and Gram (-) has RR 2.4 (95%CI=0.7–7.7; p=0.2). RR of babies with MSAF containing E coli culture become sepsis was 3.8 (95%CI=0.8–17.0; p=0,057) and non E coli culture was 2.4 (95%CI=0.4–13.1; p=0.4).

Conclusion E coli was the prominent pathogen in babies with MSAF but not a risk factor. MSAF is the risk factor for neonatal infection.

1176 INCIDENCE AND ORGANISAM PATTERN IN EARLY ONSET NEONATAL SEPSIS

doi:10.1136/archdischild-2012-302724.1176

¹LZ Hajnal Avramovic, ¹TP Lasic Mitrovic, ¹M Rascanin, ¹J Korac, ²A Curkovic. ¹Neonatal Department; ²Maternity Department, GAK 'Narodni Front', Belgrade, Serbia

Background and Aim Early onset neonatal sepsis (EONS) occurs within the first 3 to 7 days of life. The incidence of EONS vary from 1 to 4.6 cases per 1000 live newborns. The distributions of organisms in EONS helps to use appropriate antibiotics prophylaxis during labour and neonates with suspected sepsis. The aim of our study was to compare the incidence and the organisms distribution for EONS during 2009, 2010 and 2011 for infants admitted to NICU in our Neonatal Department.

Methods Data were retrieved from newborns with positive bacterial blood and/or cerebral spinal fluid in the first 72 h after birth. We compared incidence rate and causative organisms.

Results A total of 198 newborns with suspected sepsis, 125 had positive cultures over the time of three years period. The EONS incidence was 8.1 (54 per 6659 neonates) in 2009, 5.7 (40 per 6994 neonates) in 2010. and 4.5 (31 per 6883 neonates) in 2011. B Streptococcus were the most common organism (3.4/1000) in the term infants. Staphylococcus coagulase-negative was second with rate 2.8/1000. Escherichia coli (3.8/1000) and Staphylococcus coagulase-negative (3.5/1000) were the most common in preterm infants. There were no significant changes in organism pattern in EONS during study period.

Conclusion The rate of EONS among neonates in NICU in study period was not significantly changed and we did not find significant change in bacterial organisms. So, we suggest further prevention of EONS focused on prevention of vertical transmission and intrapartum antibiotics prophylaxis.

1177 IMPACT OF 4% CHLORHEXIDINE CORD CLEANSING OF UMBILICAL CORD ON BACTERIAL GROWTH OF NEWBORNS IN PEMBA, TANZANIA

doi:10.1136/archdischild-2012-302724.1177

¹S Sazawal, ¹U Dhingra, ²S Madhesiya, ³A Dutta, ³SM Ali, ³S Ame, ³S Deb, ¹R Black. ¹International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; ²Center for Public Health Kinetics, New Delhi, India; ³Public Health Laboratory-IdC, Chake Chake Pemba, Zanzibar, Tanzania

Introduction Studies in Nepal, Pakistan, and Bangladesh have shown using 4% CHX solution for umbilical cord cleansing reduces neonatal mortality and omphalitis. Data evaluating the effect of 4% Chlorhexidine umbilical cord cleansing from the Sub-Saharan region is lacking. Considering this need we are undertaking a double blind, controlled study in Eastern Africa. Before starting the trial, in this pilot we tested the impact of 4% Chlorhexidine and control solution specially prepared for the trial on colonization and colony count.

Methods Total 512 newborns in both the hospital and community were enrolled in the study. Newborns were randomly assigned the Chlorhexidine, placebo or dry cord care group. Umbilical swabs were collected at baseline (before the application of intervention), 2 hour and 48 hour after application of the assigned intervention. Presence of growth, identification to gram positive/negative groups and semi-quantitative colony count was estimated for all samples.

Results The positivity was high baseline swabs 30% (154 of 512 samples). In 2 hour post intervention group Chlorhexidine significantly reduced the growth of pathogens compared to placebo (OR 0.15, p< 0.01) and dry cord [OR 0.07, p=0.00]. In 48-hour swabs reduction in growth and density of organisms was observed in Chlorhexidine group (OR 0.11, p<0.01). There was no difference between the control solution and dry cord group (OR 0.97, p=0.92).

Conclusions Chlorhexidine preparation was effective in reducing the growth and density of pathogens over the umbilical cord. The control preparation did not increase colonization but was similar to dry cord care group.

1178 EVALUATING OPTIMAL QUANTITY OF CHLORHEXIDINE SOLUTION NEEDED FOR APPLICATION TO UMBILICAL CORD OF NEONATES IN FIRST 10 DAYS OF LIFE

doi:10.1136/archdischild-2012-302724.1178

¹S Sazawal, ²S Nangia, ³S Deb, ⁴S Madhesiya, ³A Dutta, ⁴P Dhingra, ¹U Dhingra, ³SM Ali, ³S Ame, ⁴S Gupta, ⁴A Ahmed, ¹R Black. ¹Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD, USA; ²Department of Pediatrics, Lady Hardinge Medical College & Kalawati Saran Children's Hospital, New Delhi, India; ³Public Health Laboratory-IdC, Chake Chake Pemba, Zanzibar, Tanzania; ⁴Center for Public Health Kinetics, New Delhi, India

Background Efficacy studies of application of chlorhexidine on umbilical cord have suggested significant improvement in neonatal outcomes. An important question for new trials and programs however is what should be the quantity used. There are concerns about the increased risk of hypothermia resulting from spillage or over use of any cleansing liquid solution in newborn. In context of a randomized controlled trial evaluating impact of cord cleansing in Africa, on recommendation of DSMB we undertook a pilot study, which aimed to determine the optimal quantity of the intervention solution required for application on umbilical cord of newborn.

Methods Children were enrolled from both community and hospital in Pemba (n=62) and only from Hospitals in Delhi (n=50). Trained Hospital staff/MCH applied the intervention solution from a dropper bottle filled with 10 ml, on the umbilical cord of the baby generously such that it covered umbilical cord and periumbilical area. A study supervisor to maintain consistency supervised the process. After application the unused volume from each of the containers was measured to determine the actual usage.

Results The mean volume of usage did not differ between Pemba and Delhi (4.58±0.8 ml and 4.79±1.88 ml respectively). The quantity of solution used ranged from 3ml to 7.5ml with a median of 4.5ml.

Conclusions The optimal requirement for application was found to be 5 ml. However to be little conservative we recommend use 6 ml to adjust for any spillage and/or any abnormally long cord.