Conclusion A multidisciplinary approach to the ongoing management of HPN patients can dramatically reduce their risk of CBSI.

581 PROSPECTIVE STUDY OF CENTRAL VENOUS CATHETER INFECTIONS IN CRITICALLY ILL CHILDREN AT A REGIONAL PAEDIATRIC INTENSIVE CARE UNIT

doi:10.1136/archdischild-2012-302724.0581

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Background and Aims Central venous catheters (CVC) play an important role in the management of critically ill children, serving both as a reliable vascular access and site of venous pressure monitoring.

To find the incidence CVC related infection and risk factors associated with these complications from different central venous access sites in critically ill children.

Methods A prospective study (August 2010 to July 2011) of 227 central venous catheterisations in children of different ages in a large regional Paediatric Intensive Care Unit. Data on demography, site of insertion and type of CVC infections were collected.

Results Total number of CVC days (for 227 CVC) was 960 days.

Abstract 581 Table 1 CVC infections

Category of CVC infection	Catheter related bacteremia	Clinical suspicion of catheter infection	Local infection	Catheter colonisation
Number of cases	7	14	1	11
per 1000 catheter days	7.29	14.58	1.04	11.45

Abstract 581 Table 2 Catheter related bacteremia

Type of bacteria	Number of cases
Coagulase negative staphylococcus	4/7
Staphylococcus aureus	2/7
Escherichia coli	1/7

Abstract 581 Table 3 Internal jugular vein vs femoral vein

	Internal jugular vein	Femoral vein
CVC infection	11/127 (8.66%)	11/90 (12.22%)
Catheter related bacteremia	3/11	4/11

Relative risk (RR) for femoral vein vs internal jugular vein for CVC infections is 1.4.

Conclusion Incidence of catheter related bacteremia was 7.29 per 1000 catheter days. Femoral lines have marginal higher infections compared to internal jugular lines.

582 RISK FACTORS FOR CENTRAL-LINE ASSOCIATED BLOODSTREAM INFECTIONS IN CRITICALLY ILL NEONATES

doi:10.1136/archdischild-2012-302724.0582

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Background and Aims The improvement of central line insertion and maintenance practices has led to reduction but not elimination of central line-associated bloodstream infections (CLABSIs) in critically ill neonates. The objective of our study was to describe CLABSI epidemiology in critically ill neonates in order to identify risk factors for additional prevention strategies.

Methods Prospective cohort study in medical-surgical neonatal and pediatric ICU. All neonates admitted between January 1, 2011, and January 31, 2012 with ≥ 1 central lines were monitored for the development of CLABSI. Risk factors for CLABSI were examined.

Results Nine CLABSIs occurred during 1640 central line-days (5.5/1000 central line-days). Seven out of 9 CLABSIs (78%) occurred in neonates with primary surgical diagnosis (gastrointestinal tract anomaly 4, congenital heart disease 2, rabdomyosarcoma 1), two CLABSIs developed in neonates with hypoxic-ischemic encephalopathy. Neonates with CLABSI had significantly longer ICU length of stay compared to other neonates requiring central line (median 27 vs. 3 days; p<0.0001), higher PRISM III score (median 14.5 vs. 7; p=0.01), more surgical procedures (median 2 vs. 1; p=0.14), longer duration of parenteral nutrition (median 10 vs. 0 days; p<0.0001), received more red blood cell transfusions (median 5 vs. 0; p<0.0001), needed more vasopressor/inotropic agents (median 2 vs. 0; p=0.002).

Conclusion The incidence of CLABSI is significantly higher in neonates with primary surgical diagnosis (particularly gastrointestinal tract anomaly) and with hypoxic-ischemic encephalopathy compared to other neonates requiring a central line. The increased risk of CLABSI in these neonates warrants further study for development of additional prevention strategies.

583 THREE YEAR SURVEY OF BLOOD STREAM INFECTIONS (BSI) IN A PAEDIATRIC INTENSIVE CARE UNIT (PICU)

doi:10.1136/archdischild-2012-302724.0583

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Background and Aims Nosocomial infection is a common cause of morbidity and mortality in PICU. Timely microbiological surveillance and assessment of antimicrobial resistance is important in treatment. We studied the microbiological spectrum and susceptibility pattern of pathogens in PICU over 3 years.

Methods Results of blood cultures and antimicrobial susceptibility were reviewed retrospectively over a three year period (April 2008 to 2011). The incidence of nosocomial infections and associated pathogens was analyzed. Positive blood cultures after 48hours of admission were considered as nosocomial BSI.

Results There were 1653 PICU admissions of which 836 patients stayed for more than 48 hours. Overall incidence of BSI was 3.6% (60 episodes in 1653 patients). Incidence of nosocomial BSI was 2.9% (24 episodes in 836 patients).

During first 48 hours there were 36 positive blood cultures, 24 Gram-positive (67%) and 12 Gram-negative (33%). After 48 hours, there were 24 positive cultures, 20 Gram-positive (83%) and 4 Gram-negative (17%). Coagulase negative staphylococcus was the commonest isolate (13/24 nosocomial infections). Other nosocomial pathogens were Staphylococcus aureus (n=4), Enterococus (n=3), E. coli, Klebsiella, Pseudomonas and Acinetobacter (1 each).

Varying degree of resistance observed to first line antibiotics (penicillin, gentamicin, 3rd generation cephalosporins). No resistance to second and third line antibiotics (vancomycin, meropenem and tazocin).

Conclusions Gram positive organisms are the predominant cause of nosocomial infections in this study. No multiresistant organisms isolated. However, judicious use of antibiotics is important to prevent emergence of multiresistant strains.

584 CATHETER ASSOCIATED BLOOD STREAM INFECTION IN PEDIATRIC INTENSIVE CARE

doi:10.1136/archdischild-2012-302724.0584

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Arch Dis Child: first published as 10.1136/archdischild-2012-302724.0584 on 1 October 2012. Downloaded from http://adc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

Background and Aim The aim of this study, the frequency of catheter associated blood stream infection (CA-BSI) and its effect to mortality and length stay (LOS) of hospital.
Methods This study was conducted between November 1, 2010 and February 29 2012, and it is prospective and observational.
Results During study period, 275 patients admitted to PICU. Fifty-six percent of all patients were girl and their mean age were 87±87.4 months. There was CVC in 107(38.9%) patients. Also, there were CVC at vena jugularis interna (VJI) in 48.9%, femoral in 46.7% and subclavian in 4.3% of patients with CVC. There were 23 times CA-BSI in 16 (14.8%) patients. Totaly CVC use day was 1589 days and CA-BSI was 14 attack/1000 days within study period. The agents of CA-BSI were A. Baumannii (26%), MR-Coagulase Neagative Staphylococcus (21.7%), ESBL (+) Kl. Pneumonia (21.7%), VRE (8.6%), P. Aeruginosa (8.6%). There were 169 patients without CVC and 4 (2.4%) of them BSI. CA-BSI weas 85% of all BSI. The LOS of PICU was 43.7±63.7 days in patients with CA-BSI and 11±11.4 days in patients without CA-BSI in patients with CVC (p=0.005). The LOS of PICU in patients without CVC; 29.7±16.1 days in BSI group and 5.1±5.7 days in without BSI group (p=0.001). During study period, 36 (13%) patients died and 5 of them were related CA-BSI.
Conclusion CVC use is severe risk factor for CA-BSI, LOS of PICU and mortality.

585 CASE-CONTROL ANALYSIS OF ENDEMIC ACINETOBACTER BAUMANNII BACTEREMIA IN THE NEONATAL INTENSIVE CARE UNIT

doi:10.1136/archdischild-2012-302724.0585

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Background and Aim Acinetobacter baumannii has become an important cause of nosocomial infection, but little is known about its impact on the neonatal intensive care unit (NICU). We planned to characterize the clinical manifestations and outcomes of patients with A. baumannii bacteremia in the NICU.
Methods All patients with A. baumannii bacteremia in our NICU from 2003–2010 were reviewed. A matched case-control study was performed by comparing each case of A. baumannii to 2 uninfected controls and all cases of Escherichia coli and Klebsiella bacteremia, respectively.
Results 37 sporadic cases of A. baumannii bacteremia were identified. Pan-drug resistant isolate was noted in only 2 cases (5.4%), and the overall mortality rate was 8.1%. Infants with A. baumannii bacteremia had median gestational age and birth weight of 28 weeks and 1090 grams, respectively. Compared to matched, uninfected controls, infants with A. baumannii were more likely to have had a central vascular catheter (CVC) (OR=3.78; 95%CI: 1.44 to 12.35) and longer duration of ventilator use and hospitalization (both P<0.001). Compared to E coli or Klebsiella bacteremia, infants with A. baumannii bacteremia had lower birth weight (median of 1090gms vs 1300gms, P=0.044) and a higher rate of CVC and TPN use (both P<0.001) at the time of infection.
Conclusions A. baumannii bacteremia occurs sporadically in the NICU, primarily in low birth weight infants on TPN use and with CVC in situ. Although A. baumannii does not often cause mortality and PDR- A. baumannii is uncommon, it contributes significantly to longer hospitalization.

586 HIGHER LEVELS OF INFLAMMATORY MARKERS IN VLBW INFANTS WITH CATHETER SEPSIS CAUSED BY COAGULASE NEGATIVE STAPHYLOCOCCI RESISTANT TO OXACILLIN

doi:10.1136/archdischild-2012-302724.0586

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Background and Aims Coagulase negative Staphylococci (CoNS) are most prevalent pathogens in central line associated bloodstream infections (CLABSI) in very low birth weight (VLBW) infants. The aim of this study was to compare CLABSI caused by CoNS in terms of virulence and clinical relevance.
Methods A retrospective observation analysis of all CLABSI caused by CoNS in VLBW infants admitted to our NICU during a 5-year period (2006–2010) was performed. Two groups of CLABSI were compared: the OXAS caused by CoNS susceptible to oxacillin and the OXAR caused by CoNS resistant to oxacillin, in terms of perinatal demographic data, related laboratory signs and clinical data.
Results There were 54 episodes of CLABSI caused by CoNS found in 51 infants, 14 in the OXAS group (average BW±SD: 855g ± 293; average GA±SD: 25.9 wks ± 2.8) and 40 in the OXAR group (average BW±SD: 788 g ± 241; average GA±SD: 26.2 wks ± 2.3). The OXAR group presented a higher maximum CRP levels (median±95%CL: 28±15 mg/l vs. 21±12 mg/l, p=0.047), as well as the maximum values of the I/T index (median±95%CL: 0.23±0.04 vs. 0.19±0.05, p=0.051), higher number of positive blood cultures (median±95%CL: 1±0.14 vs. 2±0.3, p=0,006) and the tendency to a higher incidence of necrotizing enterocolitis (38% vs. 14%, p=0.078).
Conclusions Resistance to oxacillin in CoNS CLABSI has a relevant influence on higher levels of inflammatory markers and the tendency to NEC in VLBW infants.

587 CAVITATING PULMONARY TUBERCULOSIS IN CHILDREN

doi:10.1136/archdischild-2012-302724.0587

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Background and Aim To evaluate the clinical characteristics of children with cavitating pulmonary tuberculosis (PTB).
Patients and methods: We reviewed retrospectively 33 children followed at our hospital with a diagnosis of PTB between April 2007–March 2012 and evaluated the clinical characteristics of patients with cavitary lesions. Tuberculosis (TB) was confirmed by isolation of Mycobacterium tuberculosis (M. tuberculosis) from early morning gastric aspirates, by positive tuberculin skin test (TST), history of exposure to tuberculosis, and/or detection of acid-fast bacilli (AFB) in the early morning gastric aspirates.
Results Seven (21%) of 33 children had cavitating PTB. Median age was 13 years (range 0.4–15.5), with a female/male ratio of 2.5/1. All of them except one patient were ≥12 years old. Three (43%) patients had chronic cough (>4 weeks) and two patients had hemoptysis (1 of them had massive hemoptysis). Contact with a case of TB in the family was available in all of the patients and TST was positive again in 100% of patients. M. tuberculosis was isolated in five (70%) cases. AFB smear positivity was detected in three patients. Chest x-ray and/or thorax computed tomography revealed consolidation in six cases (upper lob involvement in three cases), hilar lymphadenopathy in three and multiple cavities in two cases.
Conclusion Cavitating pulmonary tuberculosis is rare in childhood, but it can be seen especially in older ages. It should be kept on mind that adolescents with cavitary lesions can be potentially contagious and they should be treated with infection control measures.

588 PERINATAL FACTORS ASSOCIATED WITH MULTIPLE LARGE CYSTS ON CHEST COMPUTED TOMOGRAPHY IN EXTREMELY PREMATURE INFANTS WITH CHRONIC LUNG DISEASE

doi:10.1136/archdischild-2012-302724.0588

Arch Dis Child: first published as 10.1136/archdischild-2012-302724.0584 on 1 October 2012. Downloaded from http://adc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.