420 A NEW TOOL FOR BILATERAL DIAPHRAGMATIC PARALYSIS DIAGNOSIS

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Background and Aims Bilateral diaphragmatic paralysis (BPD) is a rare cause of unexplained respiratory failure. Although it is a known complication of cardiothoracic surgery, it is often under-recognized and diagnosis is frequently delayed (Billings 2008). We report two children in whom BDP was easily detected using an esophageal probe equipped with sensors for measurement of electrical activity of the diaphragm.

Results Case 1: A 3-year-old boy with complex congenital cardiopathy underwent a third surgery for the bidirectional Glenn anastomosis procedure. Extubated few hours after surgery, he developed dyspnea. After reintubation, an esophageal probe equipped with sensors was installed. No electrical activity of the diaphragm could be found, thus evoking the diagnosis of BDP. This diagnosis was confirmed later by a fluoroscopy.

Case 2: A 9-month-old girl with atrioventricular canal defect underwent a third surgery for a mitral valve placement. Because of several extubation failures, tracheal fibroscopy, chest tomodensitometry, and an echography of the diaphragm performed by a radiologist did not provide an explanatory diagnosis. Thereafter an esophageal probe equipped with sensors did found electrical activity of the diaphragm, in the absence of blood alkalosis nor profound sedation. The diagnosis of BDP was confirmed by an electromyography of the diaphragm with a phrenic-nerve conduction study.

Conclusions Commercially available feeding tubes equipped with sensors permit to record electrical activity of the diaphragm via a ventilator using a standardized method (Sinderby 1997). This measurement allows a rapid diagnosis of bilateral diaphragmatic paralysis at the bedside.

421 SYSTEMATIC ECHOCARDIOGRAPHY IN CHILDREN WITH ACUTE RESPIRATORY FAILURE (ARF) IN PICU OF THE UNIVERSITY HOSPITAL CENTER OF ORAN (ALGERIA)

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Background and Aims Sytematic echocardiography in children with ARF in bedside allows the description of cardiac anatomy with the segmental analysis. The aim of this study is to determine the heart malformation as etiology of ARF.

Methods In this prospective study, 53 children with ARF had an echocardiography exploration from september 2009 to march 2012.

Results 53 transthoracic echocardiography (TTE) were performed and congenital heart diseases were found in 29 patients.

Segmental analysis allow morphological and functional study of the heart; search for congenital defects and look for possible hémodynamic causes of ARF like high arterial pulmonary blood pressure.

Conclusion TTE is a non invasive tool useful to bedside of children in PICU for the dignostic of cardiac etiology of ARF. In developing countries systematic TTE must be performed to screening of congenital heart malformations.

422 SURFACTANT IMPLEMENTATION IN TREATMENT OF RESPIRATORY DISTRESS SYNDROME - OUR EXPERIENCES

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Introduction Surfactant is mix of lypo-proteins and it synthesizes in the lungs of the fetus. It lines the walls of the alveoli preventing their collapse and prevents athelectasis. The most important indication for use of surfactant is Respiratory Distress Syndrome (RDS) of the preterm infants.

Goal The goal of our paper is to represent our experience in application of surfactant immediately after birth in the prophylaxis of RDS in premature babies.

Method Retrospective analysis of neonatal morbidity of 92 infants during period 2010–2011, to whom prophylactic surfactant administered in our Neonatal Department. We assessed the b vitality at birth, body weight of newborns, gestational age and gender.

Results Analysis of gestational maturity was noted that the 4, 34% of infants had a gestational age of less than 25 weeks of gestation, 45, 65% from 25, 1 to 28 w., 21.19% from 28.1 to 30 and 22.82% ≥30.1w. The average gestational age was 28.3±1.8 weeks. The average Apgar score in the fifth minute was 5.27±1.30. The average body weight was 1086.85 g±253, 47g. 48.92% were male and 51.08% was female. After surfactant therapy, they were transported to the tertiary level institutions in good general condition.

Conclusion Surfactant needs to be applied as early as possible and not allow the infant exhausted. Presence team of neonatologists and pediatric nurses will increase the percentage of infants who have the ability to lower the gestational maturity to be able to live.

423 ACUTE RESPIRATORY FAILURE IN CHILDREN - A 3 YEARS EPIDEMIOLOGICAL STUDY

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Background and Aims Acute respiratory failure is the most frequent reason for admission in a pediatric emergency department. This study aimed to investigate the epidemiological characteristics of patients admitted with acute respiratory failure.

Methods We performed a retrospective study regarding the period September 2009–January 2012 that included all patients admitted with the diagnosis of acute respiratory failure in "Grigore Alexandrescu" Children Emergency Hospital in Bucharest; we evaluated: personal data (sex, age), time of admission (year, month, day, hour, hospitalization period), admission diagnosis and co morbidities. Statistical analyze was performed with Microsoft Excel and SPSS.

Results We had 836 patients admitted for acute respiratory failure being 3.14% of all hospitalised patients and 5.4% of all patients suffering of respiratory diseases; the mean age of our study group was 2years9months. Sex distribution indicates 537 boys and 299 girl, p=0.00. The maximum incidence was in 2010 (mean 33cases/month), in October (15.2%), between 18.00–21.00 p.m.(17.6%). In the majority of cases we claim that acute pneumonia (48.7%) was the main cause of respiratory impairment followed by bronchiolitis (25.4%) and asthma (9.1%). Rare causes of respiratory failure were: intoxications, neurological conditions, cardiac malformations and diabetes.

Conclusions Acute respiratory failure still remains an important issue of pediatric emergency departments. The diseases complicated with acute respiratory failure are various and sometimes surprising.

424 MULTILOCULATED PARAPNEUMONIC EFFUSIONS: BEDSIDE DIAGNOSIS AND TREATMENT IN CRITICALLY ILL CHILDREN

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Introduction Use of chest ultrasonography as a diagnostic tool and intrapleural fibrinolytic therapy is an alternative to surgical intervention in children with severe pneumonia and parapneumonic loculated effusions.
Objectives To study complicated parapneumonic effusions using bedside chest ultrasonography (U/S) and intrapleural urokinase in our PICU.
Methods Children with pleural effusion were recruited during 2006–2009(A) and 2010–2012(B). Chest tube was inserted and intrapleural urokinase (40,000 IU/kg/dose every 12 hours) was administered. Surgical intervention was reserved for patients with necrotic pneumonia and pulmonary abscess.
Results 16 patients (age 3.8±0.7 year; males:females 9:7) were diagnosed with significant effusion. Streptococcus pneumoniae and Staphylococcus aureus were more frequently isolated. More patients in period B experienced severe necrotic pneumonia compared to A (5 vs. 0), needed urokinase (4 vs. 1), or required surgery (2 vs. 0) ($p<0.04$), and had prolonged length of stay (13±4 vs. 5±1 days, $p<0.05$). Five patients received urokinase (31%) and 2 (12.5%) required an operative intervention. Patients requiring surgical intervention had longer length of stay (21 vs. 5 or 12, $p=0.005$). There were no significant differences between groups regarding pleural effusion characteristics, amount of drained pleural fluid (130±1 vs. 406±76 vs.457±132 ml), and fever duration after chest tube insertion (8±8 vs. 2±1vs.10±7 days, respectively).None of the patients experienced any side effects due to urokinase; all patients discharged in good condition.
Conclusions Aggressive intrapleural fibrinolytic treatment based on bedside chest ultrasonograhy confers significant benefit in effectively treating multi-loculated pleural effusions, reserving surgical intervention for necrotic pneumonia and pulmonary abscesses.

425 HOSPITAL-ACQUIRED PNEUMONIA IN CRITICALLY-ILL CHILDREN: INCIDENCE, RISK FACTORS, OUTCOME WITH INSIGHT ON EMERGENCY DIAGNOSIS BY MULTIPLEX POLYMERASE CHAIN REACTION

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Hospital acquired pneumonia (HAP) is the most frequent hospital-acquired infection in critically ill patients. NNIS system reported that HAP accounts for 31% of all nosocomial infections acquired in medical ICUs. Increasing incidence of infections by antibiotic-resistant pathogens contributes to higher mortality, longer ICU stay and higher costs. So we aimed to identify the incidence of HAP, its risk factors, and its effects on outcome, we evaluated as well the usefulness of multiplex polymerase chain reaction (m-PCR) as a tool for emergency diagnosis of HAP.

We examined all consecutive admissions to Pediatric ICU from February 2010 to August 2010. Patients were diagnosed to have HAP when their Clinical Pulmonary Infection Score (CPIS) index was more than 6. Blood and endotracheal aspirate (ETA) were tested for bacterial pathogens by microbiological cultures and multiplex PCR simultaneously.
Results Twenty five patients out of 90 admissions (27.7%) developed HAP during the observation period, with incidence rate of 13 per 1000 patient days and overall mortality of 56%. Gastro-esophageal reflux disease (GERD), mechanical ventilation (MV), endotracheal re-intubation and sedation were the main recorded risk factors for HAP. Multiplex-PCR showed better sensitivity and positive predictive value than bacterial culture for etiological diagnosis of HAP. Acinetobacter and Klebsiella pneumoniae were the most common identified pathogens.
Conclusion Hospital-acquired pneumonia adversely affects patients outcome in our setting. Moreover, m-PCR permits simultaneous detection of several bacterial pathogens in a single reaction which can optimize the emergency diagnosis of HAP and can improve etiology-directed clinical management of bacterial pneumonia.

426 VENTILATOR-ASSOCIATED PNEUMONIA IN CHILDREN: A RETROSPECTIVE ANALYSIS

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Background and Aims Ventilator-associated pneumonia (VAP) is a common nosocomial infection in PICU patients, defined as nosocomial pneumonia in patients in mechanical ventilation≥48 hours. We conducted a retrospective study to determine the incidence of VAP and its impact on outcomes in PICU patients.
Methods The medical records of PICU patients admitted to PICU of a tertiary-care hospital from January 2011 to December 2011 were reviewed. Outcomes measures were length of mechanical ventilation and PICU stay, hospital cost and mortality.
Results 127 patients, mean age 4.48±4.25 years, 58.3% boys were enrolled. 27 admissions resulted in development of 31 episodes of VAP, accounting for a VAP rate of 15.33 per 1000 ventilator days. Mean time to diagnosis for the first VAP episode was 14.30±18.58 days from initiation of mechanical ventilation. 4 patients developed 2nd VAP episode at 21.40±17.91 day of mechanical ventilation. Age, sex, presence of comorbidity and PRISM III score at admission did not differ between patients with VAP and those without VAP. Patients with VAP had significantly longer PICU length of stay (46.04±43.68 days vs. 9.10±9.25, P<0,001), greater needs for mechanical ventilation(42.26±43.56 days vs. 6.90±7.75, P<0,001), and higher hospital costs for PICU bed excluding treatment cost (9207.40±8737.80 vs. 1820.00±1850.47, P<0,001), than those without VAP. Patients with VAP presented increased mortality (25.9% vs. 15%), but the difference didn't reach statistical significance.
Conclusions VAP in critically ill children is associated with prolonged mechanical ventilation, longer PICU stay and increased hospital cost, emerging the need for effective prevention strategies.

427 SHORT TERM OUTCOME OF HYALIN MEMBRANE DISEASE IN NEWBORN PERIOD

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Background and Aims Hyalin membrane disease (HMD) is one of the most common causes of death and complications in preterm newborn. The incidence is indirectly related to gestational age and birth weight. The aim of this study was to determine short term outcome of the babies' whit HMD.
Methods During one year study, all preterm newborn with diagnosis of HMD admitted to NICU of Emamreza hospital, Mashhad, Iran were elected. Diagnosis was based on clinical symptom, chest x ray, blood gas, and duration of disease. The babies with other cause of respiratory failure, congenital anomaly, surgery problem and transient tacypnea of newborn were excluded. In this NICU nursing to patients' ratio is 1 to 4 and occupied bed ratio is 85%.