

signs of placental inflammation in the samples that tested positive for adenovirus.

RESULTS: Between January 2005 and December 2006, 193 placenta samples (71 from preterm deliveries and 122 from term deliveries) were collected in Alexandra's Maternity Hospital in Athens, Greece. The adenoviral genome was isolated in 54 (28%) of 193 placentas. The frequency of adenovirus detection in preterm placentas compared with those from term placentas was significantly increased (29 of 71 [41%] vs 25 of 122 [20%]; $P = .002$; odds ratio [OR]: 2.6 [95% confidence interval (CI): 1.4–5.1]). Stratification by gestational age (GA) revealed a stronger association between preterm delivery and adenovirus detection as GA decreased below 33 weeks (GA \leq 29 weeks, OR: 2.8 [95% CI: 1.1–7.0]; and GA 30–33 weeks, OR: 2.7 [95% CI: 1.1–6.5]). In the subgroup of deliveries at 34 to 36 weeks' GA, the association was no longer significant (OR: 2.6 [95% CI: 0.9–7.0]). Adenoviral genome detection followed the seasonal variation of adenovirus respiratory infections (beginning of March to end of June). Chorioamnionitis was present more frequently in the adenovirus-positive preterm placentas compared with term placentas ($P = .006$). The presence of villitis ($P = .03$) and chorioamnionitis ($P = .02$) was significantly increased in the adenovirus-positive preterm placentas compared with preterm adenovirus-negative placentas.

CONCLUSIONS: Our results indicate that there is an association between placental adenoviral genome detection and spontaneous early premature birth. Adenovirus may cause preterm birth through placental inflammation (chorioamnionitis and villitis).

OUTBREAK OF HUMAN METAPNEUMOVIRUS INFECTION IN CHILDREN IN CHONGQING, CHINA

Submitted by Xiaodong Zhao

Xiaodong Zhao, Xin Chen, Zhiyong Zhang
Children's Hospital, Chongqing Medical University,
Chongqing, China

INTRODUCTION: Human metapneumovirus (hMPV) is a newly discovered respiratory pathogen. Understanding of the epidemiology of hMPV infection is limited in China.

OBJECTIVE: The objective of this study was to describe an outbreak of hMPV infection in Chongqing, China, and study the high coinfection rates of hMPV and respiratory syncytial virus (RSV).

METHODS: A total of 93 nasopharyngeal aspirates (NPAs) were collected from hospitalized children with acute respiratory diseases during December 2006 to January 2007. Total RNA was extracted from NPAs by using QIAmp viral RNA minikit and amplified for hMPV F gene and RSV G gene by real-time reverse-transcrip-

tion polymerase chain reaction (RT-PCR) and traditional PCR, respectively. Most of the hMPV-positive samples were confirmed by traditional RT-PCR and subsequent nucleotide sequence analysis.

RESULTS: Of 93 NPAs, 38 (40.9%) were positive for hMPV and 52 (55.9%) were positive for RSV. Twenty-three (24.7%) revealed coinfection with both viruses. Ages of patients with hMPV infection ranged from 1 month to 31 months; 78.9% were younger than 2 years, and 47.4% were younger than 6 months. Cough was the most common symptom, 78.9% (30 of 38) had wheezing, and 42.1% had fever.

CONCLUSIONS: HMPV seems to be an important respiratory pathogen in young children in Chongqing, China. Coinfection of hMPV and RSV may frequently occur during the winter season. Whether coinfection leads to more severe disease remains unknown.

Neonatology

INFANT-VENTILATOR INTERACTION CAN AFFECT CEREBRAL BLOOD FLOW IN PRETERM INFANTS: COMPARISON BETWEEN 2 MODES

Submitted by Ehab Saoud Abd El-Moneim

Ehab Saoud Abd El-Moneim^a, Fuerste Hans-Otto^b,
Krueger Markus^b, Ali Abou Elmagd^a, Matthias
Brandis^b, Jürgen Schulte-Moenting^c, Roland
Hentschel^b

^aPediatric Department, Sohag Faculty of Medicine, Sohag University, Sohag, Egypt; Departments of ^bPediatrics and Adolescent Medicine and ^cMedical Biometry and Statistics, University of Freiburg, Freiburg, Germany

INTRODUCTION: Disturbance of cerebral blood flow (CBF) has been associated with neonatal brain injury. Because CBF is greatly influenced by mechanical ventilation, it is important to consider the effect of ventilation mode on CBF. We have shown that pressure-support ventilation combined with volume-guarantee mode (PSV-VG) would lower ventilation pressures and improve infant-ventilator synchrony when compared with synchronized intermittent mandatory ventilation (SIMV).

OBJECTIVE: Our aim was to compare the effect of PSV-VG and SIMV on CBF.

METHODS: To study an on/off effect, 33 preterm infants (mean gestational age: 26.6 ± 2.2 weeks) were switched from SIMV to PSV-VG and back again to SIMV. By using Doppler techniques, anterior cerebral artery pulsatility index (PI_{aca}), superior vena cava flow (SVCF), and aortic minute distance (MD_{ao}) were measured in each phase. Infants were grouped according to patency of ductus arteriosus.

RESULTS: When the duct was closed, the PI_{aca} decreased significantly ($P = .002$), which indicates higher

CBF, SVCF increased by $20.1\% \pm 7.4\%$ ($P = .01$), and MDao increased by $14.6\% \pm 4.1\%$ ($P = .007$) during PSV-VG. In the group with patent ductus arteriosus, although MDao decreased by $10.5\% \pm 4.4\%$ ($P = .04$) during PSV-VG, the Placa and SVCF remained constant. We also observed noticeable changes in the pattern of SVCF Doppler waveform as infant-ventilator interaction changed with switching the ventilation mode. Such pattern changes are described here for the first time.

CONCLUSIONS: The interaction between the ventilation mode, the shunt across the duct, and probably CBF autoregulation determines the effect of mechanical ventilation on CBF. Studying the SVCF Doppler waveform pattern may be a useful tool for assessing ventilator-patient interaction.

LIPID PROFILE OF PREMATURE INFANTS UP TO THE AGE OF 3 YEARS

Submitted by Helen Apostolou

Helen Apostolou, Efi Tsekoura, Helen Bouza, Fani Anatolitou, Irini Tzanetakou, Christina Panousopoulou, Maria Koumenidou, Marina Anagnostakou
Agia Sophia Children's Hospital, Athens, Greece

INTRODUCTION: Current literature indicates a high incidence of cardiovascular disease in later life of premature infants with low birth weight.

OBJECTIVE: The purpose of this study was to investigate serum lipid levels of prematurely born infants up to the age of 3 years.

METHODS: From 2001 to 2005, 171 premature newborns were studied in the follow-up clinic. Patients were divided into 4 groups according to gestational age (≤ 30 and > 30 weeks) and birth weight (≤ 1000 and > 1000 g). Serum levels of cholesterol, triglycerides, high-density lipoprotein, and low-density lipoprotein were recorded at 12, 24, and 36 months of life.

RESULTS: Cholesterol levels were within the reference range in every given period, independent of age. Infants with low birth weight (≤ 1000 g) had significantly increased cholesterol levels compared with those with higher birth weight (> 1000 g) ($P = .013$). All groups had significantly higher serum triglyceride levels ($P = .001$) during the first year of life in comparison to all other periods. In addition, infants with low birth weight had significantly higher serum triglyceride levels ($P = .015$) during the second year of life than infants with higher birth weight.

CONCLUSIONS: Premature infants with low birth weight have increased cholesterol and triglyceride levels during the early years of life, which is a finding that might be related to a high incidence of atherogenesis in later life and requires additional investigation.

IONIZED SERUM CALCIUM, NOT SERUM TOTAL MAGNESIUM, PREDICTS OUTCOME IN NEONATAL HYPOXIC-ISCHEMIC ENCEPHALOPATHY

Submitted by Hoda Atwa

Hoda Atwa^a, Hesham Elshal^a, Amal S. Ahmed^b, Mohamed Matawie^c

Departments of ^aPediatrics, ^bClinical Pathology, and ^cGynecology and Obstetrics, Faculty of Medicine, Suez Canal University, Ismailia, Egypt

INTRODUCTION: Perinatal hypoxic-ischemic encephalopathy (HIE) is a significant cause of neonatal mortality. Previous studies have attempted to find a sensitive parameter that will accurately predict outcome in infants with perinatal asphyxia.

OBJECTIVE: With this study we aimed to determine whether the serum total magnesium (Mg), ionized Ca (iCa), and sodium (Na) levels could predict the outcome of HIE.

METHODS: This was a hospital-based prospective study of admission to a newborn NICU. A total of 60 term neonates with HIE were included in the study. HIE was classified according to the criteria of Sarnat and Sarnat. Twenty healthy term newborns were chosen as controls. Total Mg, iCa, and Na levels were measured in umbilical cord blood and after 48 hours in blood. Neurologic examination was performed at 6 and 12 months. Outcome was scored as normal, disability, or death.

RESULTS: In normal infants there was a significant increase in serum total Mg and decrease in iCa concentrations by the second day of life as compared with that from umbilical cord blood. Infants with mild HIE had significantly higher umbilical cord blood total Mg levels compared with that of infants with moderate ($P = .001$) and severe ($P = .02$) HIE. On the second day of life, infants with severe HIE had significantly higher serum total Mg levels ($P < .001$) and lower iCa levels ($P < .001$) compared with those in the mild-HIE group. No significant differences between infants with severe and moderate HIE were observed regarding cord blood and 48-hour total Mg, iCa, and Na levels. The serum cord-blood and 48-hour iCa concentrations were significantly lower in the group of infants with HIE who had a poor outcome (odds ratios: 0.82 ± 0.10 and 0.70 ± 0.09) as compared with those with a good outcome (0.91 ± 0.08 and 0.86 ± 0.08) ($P < .001$ and $P < .000$, respectively).

CONCLUSIONS: Cord-blood and 48-hour levels of iCa and 48-hour Na could predict poor outcome in infants with HIE.

CEREBRAL OXYGENATION RESPONSES DURING SKIN-TO-SKIN CARE IN LOW BIRTH WEIGHT INFANTS

INFANT-VENTILATOR INTERACTION CAN AFFECT CEREBRAL BLOOD FLOW IN PRETERM INFANTS: COMPARISON BETWEEN 2 MODES

Ehab Saoud Abd El-Moneim, Fuerste Hans-Otto, Krueger Markus, Ali Abou Elmagd, Matthias Brandis, Jürgen Schulte-Moenting and Roland Hentschel

Pediatrics 2008;121;S135

DOI: 10.1542/peds.2007-2022BBBB

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/121/Supplement_2/S135.1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Fetus/Newborn Infant http://www.aappublications.org/cgi/collection/fetus:newborn_infant_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

INFANT-VENTILATOR INTERACTION CAN AFFECT CEREBRAL BLOOD FLOW IN PRETERM INFANTS: COMPARISON BETWEEN 2 MODES

Ehab Saoud Abd El-Moneim, Fuerste Hans-Otto, Krueger Markus, Ali Abou Elmagd, Matthias Brandis, Jürgen Schulte-Moenting and Roland Hentschel

Pediatrics 2008;121;S135

DOI: 10.1542/peds.2007-2022BBBB

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/121/Supplement_2/S135.1

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2008 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

