
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

## 357 Clinical Predictors of Chest Radiographic Abnormalities in Children Admitted with Bronchiolitis: A Single Center Study

**Youn Ho Shin, MD**[1], Ga Ram Kim[2], Kyung Suk Lee, MD, PhD[2], Young-Ho Jung[2], Hye Mi Jee, MD[2], Man-Yong Han, MD[3]; [1]Department of Pediatrics, CHA Gangnam Medical Center, CHA University School of Medicine, Seoul, South Korea, [2]Department of Pediatrics, CHA University Bundang Medical Center, Seongnam, South Korea, [3]CHA University Bundang Medical Center, Seongnam, South Korea.

**RATIONALE:** Chest radiography is often performed on patients when they are admitted with the diagnosis of bronchiolitis; however, it is unclear as to whether performing chest radiographs in patients with bronchiolitis at admission is useful. The aim of the present study was to determine clinical predictors of chest radiographic abnormalities, in children hospitalized with bronchiolitis in a general hospital.

**METHODS:** All children admitted to our inpatient Pediatric Unit with an episode of acute bronchiolitis from January 2011 to December 2012 were included. The following data were collected at admission: sex, age, neonatal history, past history of hospitalization for respiratory illnesses, heart rate, respiratory rate, presence of fever, fever duration prior to admission, oxygen saturation, laboratory parameters (ie, complete blood cell count, C-reactive protein [CRP], etc) and chest radiography. Nasopharyngeal samples were collected in order to detect respiratory viruses by polymerase chain reaction.

**RESULTS:** The study comprised 355 infants (median age 8 months, boys 60.8%, positive respiratory syncytial virus 23.9%). Among them, 33 children had a chest radiograph revealing focal opacity (n=30, 30.8%), or atelectasis (n=3, 3.8%). Multivariate logistic regression analysis showed that, after adjusting for potentially confounding factors, the clinical predictors of abnormal chest radiography findings in children hospitalized with bronchiolitis were low oxygen saturation levels (<95%) (adjusted odds ratio [aOR], 0.085; 95% confidence interval [CI], 0.043-0.167; $p<0.001$) and elevated CRP levels (aOR, 1.211; 95% CI, 1.060-1.384; $p=0.005$).

**CONCLUSIONS:** Among children admitted with bronchiolitis, chest radiographs may be necessary for children with low oxygen saturation (<95%) or high CRP levels at admission.

## 358 Rhinovirus C Infections Are Associated with Treatment Failure in Preschool Children with Recurrent Wheezing

**Alalia W. Berry, MD**[1], David Mauger, PhD[2], Leonard B. Bacharier, MD FAAAAI[3], Theresa W. Guilbert, MD, MS[4], Fernando D. Martinez, MD[5], Kristine Grindle[6], Tressa Pappas, BS[7], James E. Gern, MD, FAAAAI[8], Robert F. Lemanske, Jr, MD, FAAAAI[7], Daniel J. Jackson, MD[9]; [1]University of Wisconsin School of Medicine and Public Health, [2]Penn State University College of Medicine, Hershey, PA, [3]Division of Allergy, Immunology and Pulmonary Medicine, Department of Pediatrics, Washington University School of Medicine and St. Louis Children's Hospital, Saint Louis, MO, [4]Cincinnati Children's Hospital & Medical Center, Cinciinati, OH, [5]Arizona Respiratory Center, University of Arizona, Tucson, AZ, [6]University of Wisconsin, Madison, WI, [7]University of Wisconsin School of Medicine and Public Health, Madison, WI, [8]University of Wisconsin-Madison, Madison, WI, [9]Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison, WI.

**RATIONALE:** Viral infections, most commonly rhinoviruses (RV), are the most frequent cause of respiratory tract illnesses (RTIs) and wheezing in preschool children. There are three RV species, A, B, and C, and RV-C has recently been associated with more severe RTIs in children. We assessed the relationships among viral etiology and illness severity in children enrolled in the Azithromycin for Preventing the Development of Upper Respiratory Tract Illness into Lower Respiratory Tract Symptoms (APRIL) study.

**METHODS:** Nasal samples (n=1983) were collected at randomization and during RTIs from preschool-age children enrolled in APRIL, and were analyzed using PCR and partial sequencing to identify adenoviruses, coronaviruses, bocavirus, enterovirus, rhinoviruses (A,B,C), influenza, parainfluenza, respiratory syncytial virus and metapneumovirus. Relationships among viral etiology and illness severity were analyzed by discrete survival.

**RESULTS:** Viruses were detected in 87% of RTIs that led to treatment failure (TF), 78% of non-TF RTIs, and 38% of non-RTI samples. RV-A (22%) and RV-C (25%) were most commonly detected during RTIs. During the APRIL study, RV-C was detected in 36% of TFs. Patients with RTIs induced by RV-C had significantly increased risk of TF (RV-C vs. no virus, HR 2.4; p=0.01). Infections with RV-A (HR 1.6; p=0.22), RV-B (HR 1.0; p=0.97) or other viruses (HR 1.8; p=0.10) did not significantly increase risk of TF.

**CONCLUSIONS:** RV-A and C were the most common viruses detected during RTIs in preschool aged children enrolled in the APRIL study. Infection with RV-C was associated with increased risk of treatment failure. Analyses of interactions with APRIL treatment are ongoing.

## 359 High Serum IgE Level in the Children with Acute Respiratory Syncytial Virus Infection Is Associated with Severe Disease

**Hai Lee Chung**, Yoon Young Jang; Department of Pediatrics, School of Medicine, Catholic University of Taegu, Taegu, South Korea.

**RATIONALE:** An important feature of Respiratory syncytial virus (RSV) infection is the induction of Th2-biased immune response. We investigated serum IgE levels in the children with RSV bronchiolitis/pneumonia in related to disease severity.

**METHODS:** One hundred and seventeen children who were hospitalized with RSV bronchiolitis/pneumonia were enrolled. The patients were divided according to serum IgE levels on admission: high IgE (N=49, more than 2 SDs from the mean levels for age-matched controls) and low IgE group (N=68). We investigated if there was any difference in clinical and laboratory findings, and recurrence of wheezing between 2 groups. Difference in IgE levels between severe (severity score≥3) and non-severe group was also studied.

**RESULTS:** More frequent and prolonged fever was observed in high IgE group than low IgE group ($P<0.05$). The patients showing severe symptoms or respiratory difficulties were more frequently seen in high IgE group ($P<0.01$). There was no difference in parental allergy and atopic sensitization. Nearly same findings were observed in re-analysis of data from the patients with the 1st RSV lower respiratory infection, but recurrence of wheezing was significantly higher in high IgE group than in low IgE group ($P<0.05$). The patients with high IgE were more frequently seen in severe group than in non-severe group ($P=0.01$).

**CONCLUSIONS:** Our study showed that the children who presented with high serum IgE levels during RSV infection had more severe symptoms comparing with those with low IgE levels. It suggests that increased $Th_2$ immune response induced by RSV infection might be associated with the severity of disease.

SUNDAY