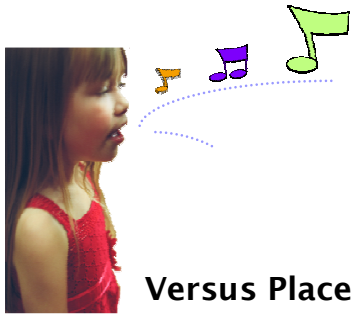

ENBe

Efficacy of Nebulised Beclometasone Versus Placebo in Preventing Viral Wheezing in Pre-School Children

NEWSLETTER **N. 4 – Marzo 2011**

Future Virol. 2010;5:355-60.

The role of human metapneumovirus in pediatric respiratory tract infection in Qatar.

Al-Thani A, Azzam SB, Al-Sheik Abboubaker HM, et al.

Aim: The human metapneumovirus (hMPV) has been recently discovered as an etiological agent of acute respiratory infections in infants and children, with similar clinical symptoms to those caused by respiratory syncytial virus. The aim of this study was to determine the prevalence of hMPV and its potential role as a causative agent of respiratory tract infections in children in Qatar. **Methods:** In the present study, we examined 84 nasopharyngeal aspirates from children with respiratory tract infections, presenting at Al-Saad Pediatric Emergency Center in Doha, Qatar, as outpatients, for the presence of respiratory viruses. **Results:** A total of 56 out of 84 (66.7%) cases were positive for the presence of respiratory viruses. Out of the 56 positive cases 54 (96%) contained hMPV; whereas 12 out of 56 (21.4%) contained human parainfluenza virus. A total of 14 out of 56 of the positive patients were infected with more than one virus. hMPV was in samples infected with one or more respiratory tract infection viruses and was the most frequently isolated virus from infants less than 6 months of age. **Conclusions:** This is the first report demonstrating the prevalence of hMPV in children suffering from respiratory tract infections in Qatar. Detection of this virus may have significant clinical implications in this patient population in Qatar.

Pediatrics. 2011;127:e180-e187.

Cord-blood 25-hydroxyvitamin D levels and risk of respiratory infection, wheezing, and asthma.

Camargo J, Ingham T, Wickens K, et al.

Objective: Higher maternal intake of vitamin D during pregnancy is associated with a lower risk of wheezing in offspring. The relationship between cord-blood levels of 25-hydroxyvitamin D (25[OH]D) and childhood wheezing is unknown. We hypothesized that cord-blood levels would be inversely associated with risk of respiratory infection, wheezing, and asthma. **Patients and methods:** Cord blood from 922 newborns was tested for 25(OH)D. Parents were asked if their child had a history of respiratory infection at 3 months of age or a history of wheezing at 15 months of age and then annually thereafter. Incident asthma was defined as doctor-diagnosed asthma by the time the child was 5 years old and reported inhaler use or wheezing since the age of 4 years. **Results:** The median cord-blood level of 25(OH)D was 44 nmol/L (interquartile range: 29-78). Follow-up was 89% at the age of 5 years. Adjusting for the season of birth, 25(OH)D had an inverse association with risk of respiratory infection by 3 months of age (odds ratio: 1.00 [reference] for (greater-than or equal to)75 nmol/L, 1.39 for 25-74 nmol/L, and 2.16 [95% confidence interval: 1.35-3.46] for <25 nmol/L). Likewise, cord-blood 25(OH)D levels were inversely associated with risk of wheezing by 15 months, 3 years, and 5 years of age (all P < .05). Additional adjustment for more than 12 potential confounders did not materially change these results. In contrast, we found no association between 25(OH)D levels and incident asthma by the age of 5 years. **Conclusions:** Cord-blood levels of 25(OH)D had inverse associations with risk of respiratory infection and childhood wheezing but no association with incident asthma.

Per la ricerca degli articoli pubblicati nella letteratura scientifica nel periodo in esame (gennaio-febbraio 2011) sono state consultate le banche dati Medline, Embase e Cochrane Library utilizzando le seguenti parole chiave (o i loro sinonimi): ‘Child, Preschool’, ‘Respiratory tract infections’, ‘Wheezing’, ‘Asthma’, ‘Human’. Sono qui riportate le referenze considerate pertinenti e con abstract disponibile.

Arch Dis Child. 2011;96:58-61.

Adding fever to WHO criteria for diagnosing pneumonia enhances the ability to identify pneumonia cases among wheezing children.

Cardoso MR, Nascimento-Carvalho CM, Ferrero F, et al.

Objective: To examine the ability of the criteria proposed by the WHO to identify pneumonia among cases presenting with wheezing and the extent to which adding fever to the criteria alters their performance. **Design:** Prospective classification of 390 children aged 2-59 months with lower respiratory tract disease into five diagnostic categories, including pneumonia. WHO criteria for the identification of pneumonia and a set of such criteria modified by adding fever were compared with radiographically diagnosed pneumonia as the gold standard. **Results:** The sensitivity of the WHO criteria was 94% for children aged <24 months and 62% for those aged >/=24 months. The corresponding specificities were 20% and 16%. Adding fever to the WHO criteria improved specificity substantially (to 44% and 50%, respectively). The specificity of the WHO criteria was poor for children with wheezing (12%). Adding fever improved this substantially (to 42%). The addition of fever to the criteria apparently reduced their sensitivity only marginally (to 92% and 57%, respectively, in the two age groups). **Conclusions:** The authors' results reaffirm that the current WHO criteria can detect pneumonia with high sensitivity, particularly among younger children. They present evidence that the ability of these criteria to distinguish between children with pneumonia and those with wheezing diseases might be greatly enhanced by the addition of fever.

J Infect Chemother. 2011;17:87-90.

Incidence of bacterial coinfection with respiratory syncytial virus bronchopulmonary infection in pediatric inpatients.

Hishiki H, Ishiwada N, Fukasawa C, et al.

Bacterial coinfection occurs in pediatric bronchopulmonary infections caused by respiratory syncytial virus (RSV), but the incidence is uncertain. Our subjects are 188 pediatric inpatients having RSV bronchopulmonary infection in two hospitals in Chiba Prefecture between 2005 and 2007. On admission, antigen detection kits using nasopharyngeal aspirate were performed to detect RSV infection and washed sputum bacterial culture was performed to detect bacterial infection. Of the 188 pediatric inpatients with RSV bronchopulmonary infection, 95 (50.5%) patients were aged less than 1 year, 57 (30.3%) were aged 1-2 years, and 36 (19.1%) were aged 2 years or more. Thirty-six (19.1%) patients were associated with bronchial asthma attacks. Pathogenic bacteria were predominantly isolated from 43.6% of the patients. The three most frequently isolated bacteria were Haemophilus influenzae (43.9%), Streptococcus pneumoniae (36.6%), and Moraxella catarrhalis (29.3%). We found that 38.9% of H. influenzae strains were (beta)-lactamase-nonproducing ampicillin-resistant strains. All S. pneumoniae strains were penicillin G (PcG) sensitive. However, 21.9% of S. pneumoniae strains showed PcG minimum inhibitory concentration values of 2 (mu)g/ml. RSV bronchopulmonary infections in hospitalized children are often associated with antimicrobial-resistant bacterial infection in their lower airways. These results indicate that we should be aware of bacterial coinfections in the management of pediatric inpatients with RSV bronchopulmonary infection.

Respir Res. 2009;10.

Systemic T-helper and T-regulatory cell type cytokine responses in rhinovirus vs. respiratory syncytial virus induced early wheezing: An observational study.

Jartti T, Paul-Anttila M, Lehtinen P, et al.

Background: Rhinovirus (RV) associated early wheezing has been recognized as an independent risk factor for asthma. The risk is more important than that associated with respiratory syncytial virus (RSV) disease. No comparative data are available on the immune responses of these diseases. **Objective:** To compare T-helper1 (Th1), Th2 and T-regulatory (Treg) cell type cytokine responses between RV and RSV induced early wheezing. **Methods:** Systemic Th1-type (interferon [IFN] -gamma, interleukin [IL] -2, IL-12),

Th2-type (IL-4, IL-5, IL-13) and Treg-type (IL-10) cytokine responses were studied from acute and convalescence phase serum samples of sole RV (n = 23) and RSV affected hospitalized wheezing children (n = 27). The pre-defined inclusion criteria were age of 3-35 months and first or second wheezing episode. Analysis was adjusted for baseline differences. Asymptomatic children with comparable demographics (n = 11) served as controls for RV-group. **Results:** RV-group was older and had more atopic characteristics than RSV-group. At acute phase, RV-group had higher (fold change) IL-13 (39-fold), IL-12 (7.5-fold), IFN-gamma (6.0-fold) and IL-5 (2.8-fold) concentrations than RSV-group and higher IFN-gamma (27-fold), IL-2 (8.9-fold), IL-5 (5.6-fold) and IL-10 (2.6-fold) than the controls. 2-3 weeks later, RV-group had higher IFN-gamma (>100-fold), IL-13 (33-fold) and IL-10 (6.5-fold) concentrations than RSV-group and higher IFN-gamma (15-fold) and IL-2 (9.4-fold) than the controls. IL-10 levels were higher in acute phase compared to convalescence phase in both infections ($p < 0.05$ for all). **Conclusions:** Our results support a hypothesis that RV is likely to trigger wheezing mainly in children with a predisposition. IL-10 may have important regulatory function in acute viral wheeze.

Eur J Clin Microbiol Infect Dis. 2011;30:233-41.

Nasopharyngeal bacterial colonization during the first wheezing episode is associated with longer duration of hospitalization and higher risk of relapse in young children.

Jartti T, Kuneinen S, Lehtinen P, et al.

The purpose of this study was to examine the association between bacterial colonization/infection and respiratory outcomes in children younger than 3 years old who were hospitalized for their first wheezing episode. This was an observational study. The primary outcome was hospitalization time and the secondary outcomes included relapses within 2 months and time to recurrent wheezing (i.e. three physician confirmed wheezing episodes) within 12 months. Bacterial antibody assays for Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis, Mycoplasma pneumoniae and Chlamydia pneumoniae were studied as well as nasopharyngeal bacterial culture for the three former and urine pneumococcal antigen. Nasopharyngeal bacterial culture was positive in 31/52 (60%) children, serologic evidence of bacterial infection was found in 17/96 (18%) children, urine pneumococcal antigen was positive in 24/101 (24%), and any bacterial detection method was positive in 53/106 (50%) children. The children with positive nasopharyngeal bacterial culture had longer duration of hospitalization (hazard ratio 2.4) and more often relapsed within two months than those with negative culture (odds ratio 7.3). In this study, half of the first time wheezing children had bacterial colonization or symptomatic or asymptomatic bacterial infection. The bacterial colonization (i.e. positive nasopharyngeal bacterial culture) was associated with longer duration of hospitalization and higher risk of recurrent wheezing.

Am J Epidemiol. 2011;173:310-8.

Antibiotic exposure by 6 months and asthma and allergy at 6 years: Findings in a cohort of 1,401 US children.

Risnes KR, Belanger K, Murk W, et al.

Many studies have reported that antibiotic use may be associated with increased risk of childhood asthma. Respiratory tract infections in small children may be difficult to distinguish from early symptoms of asthma, and studies may have been confounded by "protopathic" bias, where antibiotics are used to treat early symptoms of asthma. These analyses of a cohort including 1,401 US children assess the association between antibiotic use within the first 6 months of life and asthma and allergy at 6 years of age between 2003 and 2007. Antibiotic exposure was associated with increased risk of asthma (adjusted odds ratio = 1.52, 95% confidence interval (CI): 1.07, 2.16). The odds ratio if asthma was first diagnosed after 3 years of age was 1.66 (95% CI: 0.99, 2.79) and, in children with no history of lower respiratory infection in the first year of life, the odds ratio was 1.66 (95% CI: 1.12, 3.46). The adverse effect of antibiotics was particularly strong in children with no family history of asthma (odds ratio = 1.89, 95% CI: 1.00, 3.58) (Pinteraction = 0.03). The odds ratio for a positive allergy blood or skin test was 1.59 (95% CI: 1.10, 2.28).

The results show that early antibiotic use was associated with asthma and allergy at 6 years of age, and that protopathic bias was unlikely to account for the main findings.

Pediatr Health. 2010;4:267-75.
Preschool wheeze: Phenotypes and beyond.
Sonnappa S
Wheezing in preschool children is mostly associated with viral upper respiratory tract infections, can recur frequently and is not usually associated with any underlying inflammation between episodes of wheeze. While spontaneous resolution of wheezing occurs in some of these children, in others wheeze persists, and these children are at risk of developing asthma. A number of birth cohort studies have improved our understanding of the natural history of preschool wheeze disorders but many gaps in our knowledge still remain. This article summarizes existing knowledge regarding preschool wheeze phenotypes including clinical relevance, natural history of preschool wheeze disorders, pathophysiology and treatment strategies. This article will focus on preschool children with recurrent wheeze with or without viral respiratory tract infections.

Ann Allergy Asthma Immunol. 2011;106:140-5.
Posttussive emesis as a symptom of asthma in children.
Turbyville J, Gada S, Payne K, et al.
Background: Emesis can be triggered by cough in children, and cough is a common symptom of asthma. Objective To explore the association between posttussive emesis and asthma in the pediatric population. **Methods:** A questionnaire was distributed to parents of children between the ages of 2 and 17 years in the pediatric and allergy-immunology clinics at our institution from August 16 through November 3, 2008. Prevalence of posttussive emesis was determined and compared among children with physician-diagnosed asthma, children with no evidence of asthma, and those not formally diagnosed as having asthma but with surrogate markers suggestive of asthma. The predictive value of posttussive emesis was compared with those of known markers of asthma. The prevalence of gastroesophageal reflux and pertussis was evaluated because these conditions might also cause posttussive emesis. **Results:** The prevalence of posttussive emesis was 33% in our study population of 500 children. Among those with physician-diagnosed asthma (n = 122), 56% reported a history of posttussive emesis. For patients not formally diagnosed as having asthma but with surrogate markers suggestive of asthma (n = 62), 71% had a history of posttussive emesis. Both of these were significantly higher than in those with no evidence of asthma (n = 316), in whom 16% reported a history of posttussive emesis ($P < .0005$). Children with posttussive emesis were significantly more likely to have asthma than those without posttussive emesis (odds ratio, 7.9; 95% confidence interval, 5.212). Neither pertussis nor gastroesophageal reflux accounted for the degree of posttussive emesis reported. **Conclusions:** Posttussive emesis is more common among children with asthma than among nonasthmatic children. In children with cough and a history of posttussive emesis, asthma should be strongly considered in the differential diagnosis.

Paediatr Croat. 2010;54:195-8.
Roentgenographic findings in bronchiolitis.
Zalavani F, Petrela R, Dega S, et al.
Background: Acute bronchiolitis is a very frequent respiratory infection in infancy characterized by obstructive respiratory distress with crepitations and wheezing. The diagnosis of bronchiolitis is complex because characteristic radiological patterns are combined with each other. The aim of this study is to reveal radiologic changes in patients with acute bronchiolitis. **Methods:** One hundred and seventy-five

children with bronchiolitis in their first wheezing episode were included in this study, who were admitted to the pediatric intensive care unit between 2000 and 2008. All patients underwent X-rays of the lungs in addition to other clinical and laboratory examinations. **Results:** Our results show that radiological changes were present in all cases: hyperinflation of the lungs in 175 children (100%), perihilar linear density and peribronchal thickening in 121 children (69.14%), bilateral bronchopneumonia in 44 children (25.14%), lobar pneumonia in 26 children (14.85%) and atelectasis in 28 children (16%). Usually radiological changes appear in combined forms: pulmonary hyperinflation and pulmonary trauma signs in 121 children (69.14%), pulmonary hyperinflation with bronchopneumonia and atelectasis in 31 children (17.71%), pulmonary hyperinflation with lobar pneumonia and atelectasis in 23 children (13.14%). **Conclusions:** We conclude that pulmonary hyperinflation and perihilar linear density are more evident when the auscultatory findings are poor. This fact has a practical value and is the main cause for the disappearance of alveolar consolidation. The differentiation between viral and bacterial bronchopneumonia as well as pneumonia and atelectasis is specially important. The radiological aspect gives us guidance for therapeutic follow up and treatment

ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI
DIPARTIMENTO DI SALUTE PUBBLICA
Laboratorio per la Salute Materno Infantile
Via Giuseppe La Masa, 19 - 20156 Milano MI - Italia - www.marionegri.it
tel +39 02 39014.253 - fax +39 02 3550924 - enbe@marionegri.it

Iniziativa nell'ambito del Progetto di ricerca indipendente AIFA
"*Efficacia del beclometasone versus placebo nella profilassi del wheezing virale in età prescolare*".
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