CLIPPINGS

Can BCG protect children against respiratory infections and sepsis? (*Clin Infect Dis. Feb 2015 doi: 10.1093/cid/civ144*)

Bacille Calmette-Guerin (BCG) vaccination has been suggested to have nonspecific benefits of reducing morbidity and mortality caused by unrelated pathogens. The authors of this retrospective epidemiological study, using data from the Official Spanish Registry of Hospitalizations, assessed the heterologous protective effects of BCG vaccination against respiratory infections and sepsis not attributable to tuberculosis in children. Hospitalization rates in BCG-vaccinated children (Basque Country, where neonatal BCG is part of the immunization schedule and has a 100% coverage) were compared to non-BCG-vaccinated children (from the rest of Spain, where BCG is not used). A total of 464, 611 hospitalization episodes from 1992 to 2011 were analyzed. The hospitalization rate due to respiratory infections not attributable to tuberculosis in BCG-vaccinated children was significant lower compared to non-BCG-vaccinated children for all age groups, with a total preventive fraction of 41.4% (P <0.001). The hospitalization rate due to sepsis not attributable to tuberculosis in BCG-vaccinated children under 1 year of age was also significantly lower, with a preventive fraction of 52.8% (P <0.001). The study concluded that BCG vaccination at birth may decrease hospitalization due to respiratory infections and sepsis not related to tuberculosis.

Are PCV and Hib vaccines preventing bacterial pneumonia in US? (*N Engl J Med. 2015; 372:835; doi: 10.1056/NEJMoa1405870*)

Prospective data-based incidence estimates of hospitalizations for community-acquired pneumonia among children in the United States are limited. This active population-based surveillance for community-acquired pneumonia requiring hospitalization among children younger than 18 years of age was conducted in three hospitals in Memphis, Nashville, and Salt Lake City of US. Authors excluded children with recent hospitalization or severe immunosuppression. Blood and respiratory specimens were systematically collected for pathogen detection with the use of multiple methods. Chest radiographs were reviewed independently by study radiologists. From January 2010 through June 2012, they enrolled 2638 of 3803 eligible children (69%), 2358 of whom (89%) had radiographic evidence of pneumonia. The median age of the children was 2 years; 497 of 2358 children (21%) required intensive care, and 3 (<1%) died. Among 2222 children with radiographic evidence of pneumonia and with specimens available for bacterial and viral testing, a viral or bacterial pathogen was detected in 1802 (81%), one or more viruses in 1472 (66%), bacteria in 175 (8%), and both bacterial and viral pathogens in 155 (7%). The annual incidence of pneumonia was 15.7 cases per 10,000 children, with the highest rate among children younger than 2 years of age (62.2 cases per 10,000 children). Respiratory syncytial virus was more common among children younger than 5 years of age than among older children (37% *vs*. 8%), as were adenovirus (15% *vs.* 3%) and human metapneumovirus (15% *vs*. 8%). *Mycoplasma pneumoniae* was more common among children 5 years of age or older than among younger children (19% *vs.* 3%). The burden of hospitalization for children with community-acquired pneumonia was highest among the very young, with respiratory viruses the most commonly detected causes of pneumonia.

MRI *vs.* CT scan – which is better for traumatic pediatric brain injuries? (*Hosp Pediatr. 2015 Feb;5:79/doi:10.1542/hpeds.2014-0094*)

Computed tomography (CT) is the modality of choice to screen for brain injuries. Magnetic resonance imaging (MRI) may provide more clinically relevant information. The purpose of this study was to compare lesion detection between CT and MRI after traumatic brain injury. Retrospective cohort of 105 children and young people (0-21 years) with traumatic brain injury (78% mild) between 2008 and 2010 at a Level 1 pediatric trauma center with a head CT scan on day of injury and a brain MRI scan within 2 weeks of injury was analyzed. Overall, CT and MRI demonstrated poor agreement. MRI detected a greater number of intraparenchymal lesions compared with CT. Among patients with abusive head trauma, MRI detected intraparenchymal lesions in 16 (43%), compared with only 4 (11%) lesions with CT. Of 8 patients with a normal CT scan, 6 had abnormal lesions on MRI. The prognostic value of identification of intraparenchymal lesions by MRI is unknown but warrants additional inquiry. Risks and benefits from early MRI (including sedation, time, and lack of radiation exposure) compared with CT should be weighed by clinicians.

Very high CRP in a newborn – what does it mean? (*Acta Paediatrica. 2015. doi: 10.1111/apa.12978*)

A serious inflammatory process is suspected when C-reactive protein (CRP) is very high. This study retrospectively reviewed 277 episodes where CRP exceeded 100 mg/L. Of the 6025 neonates admitted during the study period, 258 had CRP >100 mg/L at least once. The overall mortality rate was 44/258 (17%); 36 died within 7 days of CRP >100 mg/L, and 34 were extremely preterm infants. CRP exceeded 100 mg/L in 106 infants within the first 3 days of life – 74 term, 25 preterm and seven extremely preterm – with no infection identified in 81%. In contrast, infections were found in 87% of the 171 episodes from day four of life – 129 extremely preterm, 23 preterm and 19 term – predominantly coagulase-negative staphylococcus sepsis and necrotising enterocolitis. Markedly elevated CRP in the first 3 days of life was most likely to affect term neonates (74/106) with no infectious cause (81%). However, CRP >100 mg/L from the fourth day of life was most likely to affect extremely preterm neonates (129/171) and had an infectious cause (87%).

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