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Bulletin No. 15 07/27/2006

Respiratory Syncytial Virus Seasonality in Alaska: Implications for Palivizumab Administration

Introduction

Palivizumab (Synagis®) is licensed to prevent respiratory syncytial virus (RSV) hospitalizations in selected children <24 months of age with a history of preterm birth (≤ 35 weeks' gestation), chronic lung disease (CLD) and significant congenital heart disease.¹ The recommended timing interval for Palivizumab administration is once per month beginning just before the onset of the RSV season.

Methods

Alaska Medicaid Data

We queried the Alaska Medicaid hospitalization database for children <2 years of age with an approved claim for hospitalizations for a) bronchiolitis or respiratory syncytial virus pneumonia (ICD-9 codes 466.1, 466.11, 466.19, and 480.1) and b) lower respiratory tract infection (LRTI) (ICD-9 codes 466, 480-486, 490, 510-511). Evaluation was limited to January 1999 through June 2003.

Yukon Kuskokwim Delta Hospital-based Surveillance

We identified children from the Yukon-Kuskokwim Delta (YKD) aged <3 years who were hospitalized with LRTI during the RSV seasons of 1994-2004. RSV rapid antigen testing was performed for 82%, 83%, and 85% of children <1 year of age who were hospitalized with LRTI during 1994-7, 1997-2001, and 2001-2004, respectively. Season onset and offset were defined as the first and last of two consecutive weeks, respectively, with RSV being detected in ≥ 2 specimens and >10% of all submitted specimens.² (For a complete report of this investigation see reference number 3).

Results

Alaska Medicaid Database

Most LRTI hospitalization billing codes among children <2 years of age were for bronchiolitis or RSV pneumonia (Figure). The number of cases identified reached a nadir during July and August each year. During 1999-2002, 12% of bronchiolitis/RSV pneumonia cases were in June (4.4%), July (2.1%), August (2.0%), and September (3.7%).

Yukon Kuskokwim Delta Respiratory Syncytial Virus Seasonality

The median RSV onset, peak and offset weeks for the YKD region were October 14-20th, February 20-26th, and May 19-25th, respectively, for a median RSV season length of 30.5 weeks. Between 1994 and 2004, 13% of RSV-related hospitalizations occurred from June through September.

Discussion

RSV seasonality is known to vary substantially by geographic region and latitude.² The median RSV season length of 15-16 weeks in the continental United States supports the Redbook recommendation for palivizumab administration between November and March.¹ However, the prolonged season for RSV and bronchiolitis hospitalizations in Alaska supports palivizumab use during the 31-week period from October 1 through May 31.

Recommendations

1. Health-care providers should be aware of the prolonged and variable RSV season in Alaska and consider RSV testing and instituting RSV precautions for children hospitalized with lower respiratory illness during all but the summer months.
2. Health-care providers should administer palivizumab monthly between October 1 and May 31 to high-risk infants and children who meet the American Academy of Pediatrics criteria.¹

References

1. American Academy of Pediatrics. Respiratory Syncytial Virus. In: Pickering LK, eds. *Redbook:2006 Report of the Committee on Infectious Diseases*. 27th ed. Elk Grove Village, IL:American Academy of Pediatrics; 2006:560-6.
2. Mullins JA, LaMonte AC, Bresee JS, Anderson LJ. Substantial variability in RSV seasonality in the U.S. *Pediatr Infect Dis J* 2003;22:857-62.
3. Singleton RJ, Bruden D, Bulkow LR, Varney G, Butler JC. Decline in respiratory syncytial virus hospitalizations in a region with high hospitalization rates and prolonged season. (*Pediatr Infect Dis J*, In Print.)

Figure. Number of Lower Respiratory Tract Infection (LRTI) and Bronchiolitis/RSV Pneumonia Hospitalizations among Medicaid-enrolled Children <2 Years Old; Alaska, January 1999-June 2003.

