Seasonal Distribution of Respiratory Viruses in Pediatric Asthma in Trinidad, West Indies

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Rationale: The seasonal distribution of respiratory viruses associated with pediatric asthma is well documented in temperate climates, but has not received similar attention in the tropics.

Methods: Nasal specimens were collected during the dry (n=38, January to May) and rainy (n=112, June to December) seasons from asthmatic children, 2-16 years, who (a) presented to A&E (n=70) for nebulization or (b) were clinically stable (n=80) during the previous 3 months. A novel, high-throughput Respiratory MultiCode PCR assay (UW-Madison & EraGen Biosciences, Madison, WI) was used to detect respiratory viruses.

Results: Viral prevalence was similar (χ²=0.026, p=0.872) in both the dry (n=10, 26.3%) and rainy (n=28, 25.0%) seasons. Coronavirus OC43 or NL63 (n=2, 5.3%) and human metapneumovirus (n=1, 2.6%) were detected only in the dry season, whereas RSV B (n=6, 5.4%), enterovirus (n=3, 2.7%) and influenza A (n=2, 1.8%) were exclusive to the rainy season. Parainfluenza virus (PIV 2, Dry, n=1, 2.6%; PIV1, Rainy, n=1, 0.9%) and rhinovirus (Dry, n=6, 15.8%; Rainy, n=19, 17.0%) were detected throughout the year. All specimens were negative for RSV A, influenza B, coronavirus 229E & SARS, PIV 3 and adenovirus. Prevalence of rhinovirus was not significantly (χ²=0.028, p=0.867) associated with any particular season, but it was the most prevalent virus in both seasons. Rhinovirus demonstrated a significantly higher (χ²=7.736, p=0.005) prevalence in children who needed to be nebulized (n=18, 25.7%) compared with stable (n=7, 8.8%) asthmatics.

Conclusions: Rhinovirus is the major viral trigger for pediatric asthma in Trinidad and is not associated with seasonality in this tropical climate.