

Influence of meteorological and air pollutant factors on the isolation of RSV in infants admitted for viral bronchiolitis before and during the COVID-19 pandemic

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Abstract

Objectives. The aim of this study was to investigate the epidemiology of RSV bronchiolitis and the influence of meteorological and air pollutant factors on the isolation of RSV in infants admitted for viral bronchiolitis during three consecutive years, before and during the COVID-19 pandemic, in Bogota, Colombia, a middle-income country (MIC) with a tropical climate. **Methods.** An analytical cross-sectional study was conducted before and during the COVID-19 pandemic, including patients with a diagnosis of viral bronchiolitis admitted to all the hospitals of the city between January 2019 and November 2021. Predictor variables included meteorological and air pollutant parameters. We adjusted multivariable analysis to identify factors independently associated with isolation of RSV as the causative agent of viral bronchiolitis. **Results.** A total of 12,765 patients were included in the study. After controlling for potential confounders, it was found that age (OR 0.87; CI 95% 0.77–0.98; $p=0.029$), COVID-19 pandemic (OR 0.74; CI 95% 0.64–0.86; $p<0.001$), temperature (OR 1.85; CI 95% 1.47–2.33; $p<0.001$), and interaction terms between SES and NO₂ (OR 1.04; CI 95% 1.01–1.07; $p=0.002$), and between rainfall and NO₂ (OR 0.99; CI 95% 0.998–0.999; $p=0.010$) independently predicted the isolation of RSV as the causative agent of viral bronchiolitis in our sample of patients. **Conclusions.** The identified predictors for isolation of RSV as the causative agent of viral bronchiolitis provide additional scientific evidence that may be useful in the development of specific interventions aimed at ameliorating or preventing the impact of RSV in Bogota and probably other similar LMICs in high-risk infants.

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