The Effect of the COVID-19 Pandemic on the Nature of Bronchiolitis in Infants <6 Months Admitted to a UK District General Hospital

Emma Smith, Thomas Blyth, Miriam Fine-Goulden. ST5 Paediatrics; Consultant Paediatrician

Aims In anticipation of increasing rates of bronchiolitis post-easing of Covid restrictions, the UK began ‘respiratory surge planning’. This study compares the frequency and severity of bronchiolitis admissions prior-to and during the Covid-19 pandemic, with the hypothesis that there would be an increase in severity and volume of admissions.

Methods We conducted a retrospective cohort study of all infants aged 0-6 months at a single district-general hospital (DGH) in the UK requiring inpatient admission between 01 April 2016 and 31 January 2022, with a discharge diagnosis of bronchiolitis.

Primary outcome measures included length of stay, requirement for heated-humidified high-flow nasal cannulae (HHHFNC) oxygen and tertiary-centre retrieval to regional PICU. RSV and Covid statuses were also recorded.

Each year was divided into Summer (1 April to 30 September) and Winter (1 October – 31 March). Data pre-pandemic (before 31 March 2020) and peri-pandemic (post 1 April 2020) were included. Patient data was collected retrospectively using electronic discharge summaries and microbiology results. Severity of bronchiolitis was indexed by the requirement for HHHFNC or retrieval.

Parametric data was analysed using Student’s t-test. Non-parametric data was evaluated with the Chi-square test. A p value <0.05 was deemed statistically significant (confidence interval 95%).

Results Over the six-year period, 667 patients were identified, of which 535 met the inclusion criteria. The mean age was 83.5 +/- 31 days.

Pre-pandemic, over 92% (408/442) of cases were in the winter. During the pandemic, this fell to 61% (57/93), with no peak seen during winter 2020 (October 2020- March 2021), and an increased incidence during summer 2021 (figure 1).

Winter mean lengths of stay (LOS) for pre- and peri-pandemic were 2.47 +/- 2.2 and 1.89 +/- 2.0 days respectively (figure 2). This was statistically significant (p=0.047). Summer mean LOS for pre- and peri-pandemic were 2.62 +/- 2.0 and 2.28 +/- 1.8 days respectively (p=0.47). The all-seasons mean LOS pre- and peri-pandemic were 2.48 +/- 2.15 and 2.04 +/- 1.9 day respectively (p=0.05).

There was no significant difference in requirement for HHHFNC, with rates of 21% (91/442) pre-pandemic, and 22% (20/93) peri-pandemic (p=0.84). The frequency of admission to PICU is thankfully very small. There was no distinct seasonal trend, with a range of zero to five retrievals per 6-month period.

Conclusion This study shows a dramatic decrease in overall admissions for bronchiolitis during ‘lockdown’ at the start of the Covid-19 pandemic, then a subsequent summer spike in 2021; but no overall difference in severity. The length of stay was in fact marginally shorter during the pandemic. We conclude that there is no indication that the Covid-19 pandemic led to delays in presentation causing more severe disease in these patients, which may be useful for future service planning.