

# Impact of COVID-19 pandemic on the etiology and characteristics of community-acquired pneumonia among children requiring bronchoalveolar lavage in northern China

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## Abstract

**Objective:** To investigate the etiology and the clinical characteristics of community-acquired pneumonia (CAP) among children requiring bronchoalveolar lavage and analyze the impact of spreading of COVID-19 on the pathogens and clinical manifestations.

**Study design:** Children <14 years old hospitalized with CAP requiring bronchoalveolar lavage were enrolled between February 2019 to January 2020 and August 2021 to July 2022. Multiplex reverse transcription polymerase chain reaction (mRT-PCR) was used for pathogen detection. The demographic and clinical characteristics were compared between different type pathogen infection groups and between before and during COVID-19 pandemic. **Results:** Among 1487 children studied, [?]1 pathogen was detected in 1363 (91.66%) children and co-infection was detected in 79 (5.31%) children. *M.pneumoniae*, Adenovirus and Human Rhinovirus were the most frequently detected pathogens. During the COVID-19 pandemic, it was found that the proportion of children under 3 years was appreciably reduced and the proportion of children over 7 years was appreciably increased. The frequency of virus and co-infection was decreased except for that of atypical bacteria. The results of clinical manifestations, CT scan and fiberoptic bronchoscopy showed significant difference with different pathogen infection and the lung inflammation of the enrolled children were relatively mild compared to those before the COVID-19 pandemic. **Conclusions:** *M.pneumoniae* infection might be the greatest pediatric disease burden leading to CAP in northern China. Wearing masks and social distancing in public places could effectively reduce the transmission of respiratory viruses, but could not reduce the infection rate of *M.pneumoniae*. In addition, precautions could significantly reduced the lung inflammation compared with those before the pandemic.

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