

Decrease of respiratory virus infection in paediatric patients with hematologic-oncologic diseases during COVID-19 pandemic

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Introduction

During the pandemic 2020, other respiratory virus (RV) infection in the community decreased.

Aim

To investigate the epidemiologic trend of RV infection in paediatric patients with hematologic-oncologic diseases during the COVID-19 pandemic

Methods

- Study period: from January 2016 to December 2020 (five years)
- Patients: hospitalized paediatric patients with hematologic-oncologic diseases aged less than 19 years
- Collection of clinical data:
 - A retrospective electronic chart review
 - The results of RV PCR assay

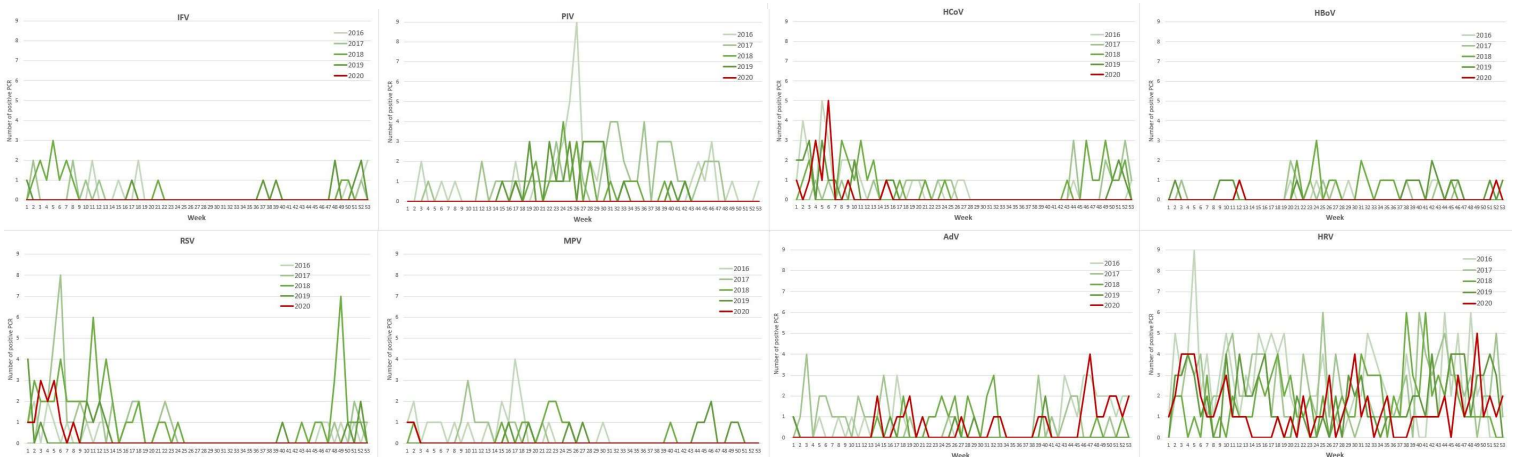
Results

- RVs were detected in 1,125 respiratory samples from 448 hospitalized patients for 5 years.
- In 240 patients, RVs were detected more than once at an average of 3.8 times (range, 2-30).
- The average number of RV detection was **250 per year in 2016-2019**.
- The number of RV detection was **127 in 2020 (51% decrease)** from the average number of previous four years).
- Virus detection decreased in 2020 compared to the previous four-year average: % (numbers in 2020/average number of 2016-19)
 - ✓ Influenza: 0% (0/10)
 - ✓ Parainfluenza: 0% (0/38)
 - ✓ Human coronaviruses (229E, OC43, NL63, and HKU1): 48% (13/27)
 - ✓ Respiratory syncytial virus: 36% (12/33)
 - ✓ Human bocavirus: 17% (2/12)
 - ✓ Human metapneumovirus: 15% (2/13)
 - ✓ Rhinovirus: 63% (73/115)

- On the other hand, the number of **adenovirus** showed **comparable** trend: the average number of adenovirus detection was 24 per year in 2016-2019, and it was detected 27 times in 2020.
- In the case of RV co-infection, there was no significant difference between the two periods:
 - ✓ 7% (the percentage of co-infection among total samples) in 2016-2019
 - ✓ 6% in 2020

Conclusions

In paediatric patients with hematologic-oncologic diseases, several RV infection decreased during the COVID-19 pandemic period with following the trend of RV infection in the community.



The graphs are shown weekly detected PCR number of hematologic-oncologic paediatric patients in 2016-2020. No influenza and parainfluenza virus were detected in 2020. Human coronavirus, respiratory syncytial virus and human metapneumovirus were observed only in February - April of 2020. Adenovirus showed comparable trend between 2016-2019 and 2020.

Abbreviation: AdV, adenovirus; HBoV, human bocavirus; HCoV, human coronavirus; HMPV, human metapneumovirus; HRV, human rhinovirus; IFV, influenza; PIV, parainfluenza; RSV, respiratory syncytial virus