EPIDEMIOLOGICAL AND CLINICAL FEATURES OF HMPV AND RSV INFECTIONS AMONG CHILDREN HOSPITALIZED FROM ACUTE RESPIRATORY INFECTIONS IN MACAO: A RETROSPECTIVE STUDY FROM 2014 TO 2017

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Objective

Human metapneumovirus (HMPV) shares clinical and epidemiological characteristics with well-known respiratory syncytial virus (RSV). This study aimed to investigate the epidemiological and clinical features of hMPV and RSV infections among children hospitalized with acute respiratory infections (ARIs) in Macao.

Methodology

- A retrospective study using electronic health records from Kiang Wu Hospital between 2014 and 2017 was performed.
- Nasopharyngeal swab specimens were obtained from hospitalized children aged 12 years or younger with respiratory tract diseases. xMAP multiplex assays were employed to detect respiratory agents.
- Chi-square test and Multivariate logistic regression analysis were used to analyze the data.

Results

- Of the 4880 children hospitalized for ARIs, 3767 tested positive for viral infection. Among these positive cases, 756 (20.07 %) were tested positive for RSV while 334 (8.87%) for HMPV.

- 688 (91.0%) of the 756 RSV infected children and 242 (72.4%) of the 334 HMPV infected children were under 3 years old. [Figure 1]

- In terms of periodic distribution, RSV infection was more prevalent in September (n=131, 17.33%) while HMPV infection was more prevalent in March (n=76, 22.75%). [Figure 2]

- Out of the four seasons, RSV infection was most prevalent in autumn (OR=0.191, p=0.000) and HMPV infection was most prevalent in spring (OR=2.434, p=0.000). [Figure 3&4]

- Among the 756 patients infected with RSV, 626 (82.80%) were diagnosed with lower respiratory tract infection, 110 (14.55%) upper respiratory tract infection, and 20 (2.65%) croup. [Table 1]

- Among the 334 patients infected with HMPV, 264 (79.04%) were diagnosed with lower respiratory tract infection, 65 (19.46%) upper respiratory tract infection, and 5 (1.50%) croup. [Table 1]

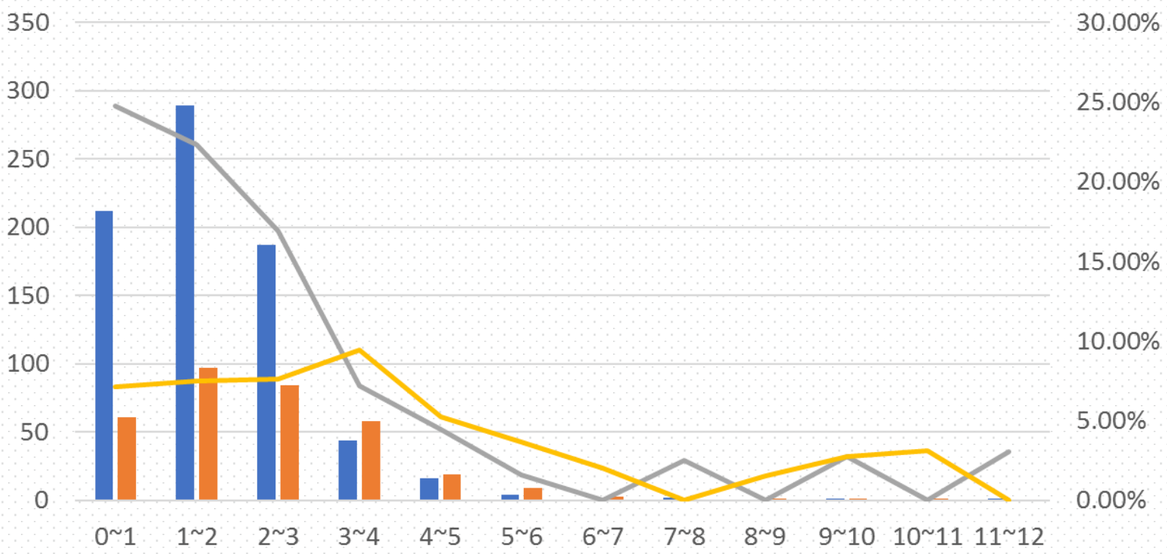

Figure 1: The age distribution of HMPV and RSV number and detection rate

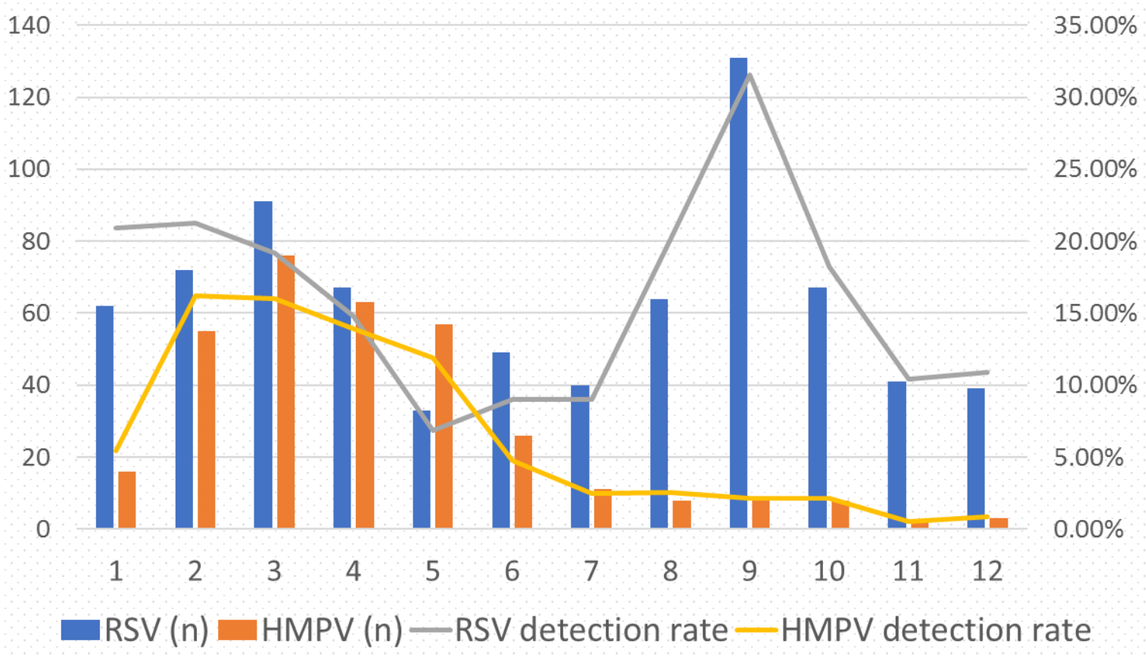

Figure 2: The month distribution of HMPV and RSV number and detection rate

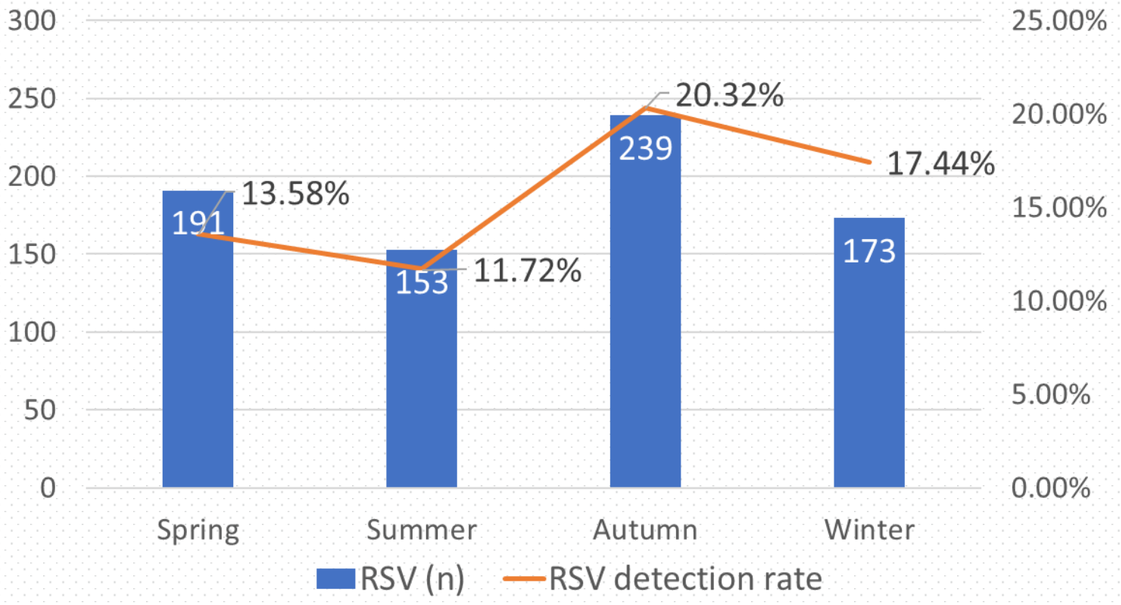

Figure 3: The seasonal distribution of RSV number and detection rate

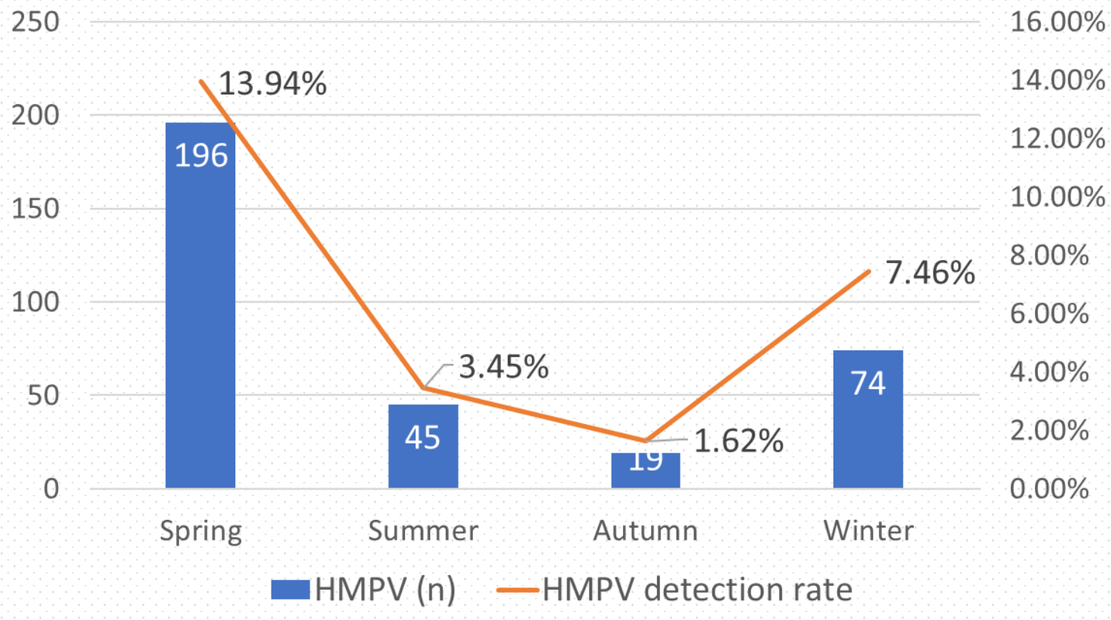

Figure 4: The seasonal distribution of HMPV number and detection rate

Table 1: The distribution of HMPV and RSV number and detection rate in clinical features

	URTIs	Croup	LRTIs	X^2	P-Value
RSV	110 (14.55%)	20 (2.65%)	626 (26.57%)	312.528	0.000
HMPV	65 (2.73%)	5 (3.55%)	264 (11.21%)	118.476	0.000
Total	2383	141	2356		

Conclusions

HMPV and RSV were the major viral infections associated with ARIs among hospitalized children in Macao, each with different epidemiological and clinical features. A good understanding of the local dominant viral etiologies is important for informing infection control practices and clinical management.

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