

Epidemiological Characteristics of Respiratory Tract Pathogens in Kunming, Yunnan Province of China, before and during the COVID-19 Pandemic

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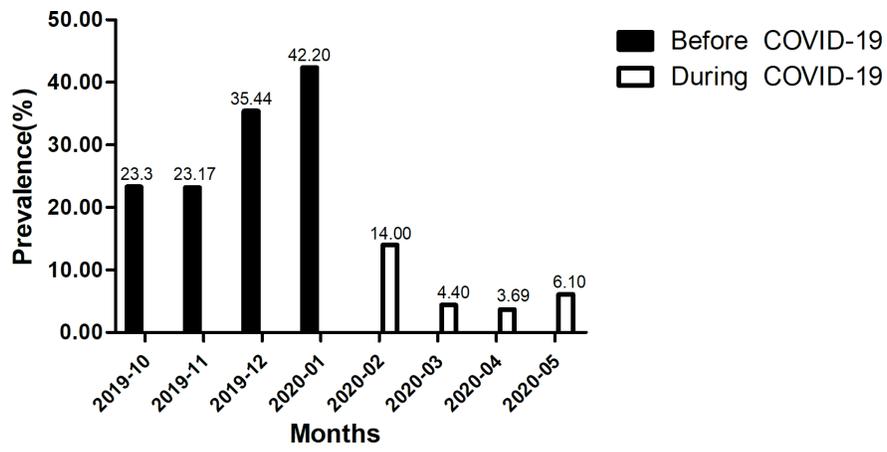
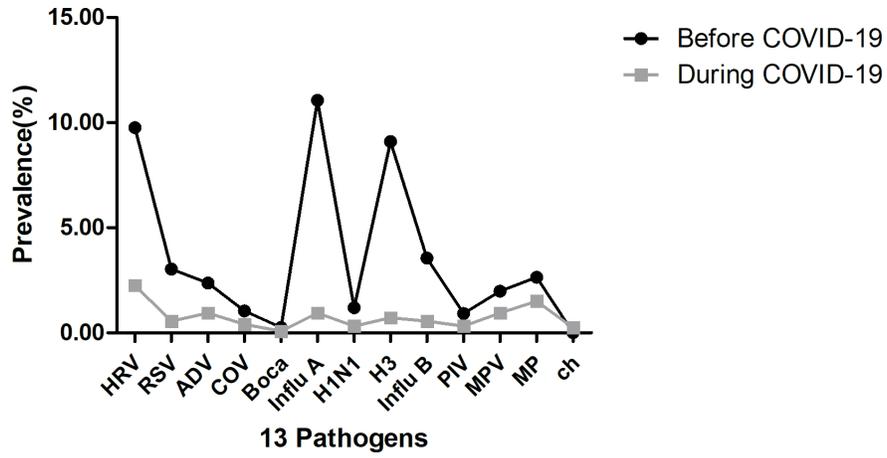
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Abstract

Viruses are the main pathogens responsible for acute upper respiratory tract infections; they spread easily among infants, young children, and the elderly population. The strong spreading capability of such viruses poses great difficulties for clinical diagnosis, treatment, and disease prevention and control. During the current coronavirus disease (COVID-19) pandemic, a clear understanding of the epidemiological characteristics of respiratory tract pathogens is essential for the timely identification of non-COVID-19 respiratory tract infections and enhancement of the efficiency of disease prevention and control. In this study, a total of 2,017 patients with upper respiratory tract infections in Kunming, Yunnan province of China, were included as subjects and divided into the Before COVID-19 and During COVID-19 groups. Differences in the infection rate of 13 common respiratory tract pathogens before and during the COVID-19 pandemic were determined using PCR in conjunction with capillary electrophoresis. Results indicated that the infection rate of respiratory tract pathogens (prevailing pathogens and infection status of different age groups) underwent significant changes after the start of the COVID-19 pandemic. Further in-depth research is required to improve the diagnosis, treatment, prevention, and control of respiratory tract infections.

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		Before COVID-19	During COVID-19	X ²	p
Project	Prevalence rate (%)	Prevalence rate (%)			
Total	(cases)	759	1258		
	Positive	255(33.6)	96(7.63)	222.047	0
	Single Positive	241(31.75)	91(7.23)	206.958	0
	Multiple Positive	14(1.84)	5(0.4)	10.623	0.001
Pathogen	Influ A	84(11.06)	12(0.95)	106.811	0
	HRV	74(9.75)	27(2.25)	57.534	0
	H3	69(9.09)	9(0.72)	89.326	0
	Influ B	27(3.56)	7(0.56)	25.723	0
	RSV	23(3.03)	7(0.56)	19.772	0
	MP	20(2.64)	19(1.51)	3.158	0.076
	ADV	18(2.37)	12(0.95)	6.493	0.011
	MPV	15(1.98)	3(0.24)	16.164	0
	H1N1	9(1.19)	4(0.32)	5.567	0.018
	COV	8(1.05)	5(0.40)	3.187	0.074
	PIV	7(0.92)	4(0.32)	3.187	0.074
	Boca	2(0.26)	1(0.08)	1.079	0.299
	ch	0 (0)	3(0.24)	1.813	0.178
	Age Group(year)	<1	16 (2.11)	3(0.24)	17.732
1~5		28 (3.69)	21(1.67)	8.147	0.004
6~10		16(2.11)	3(0.24)	17.732	0
11~20		9(1.19)	5 (0.4)	4.268	0.039
21-30		29(3.82)	10 (0.79)	22.859	0
31-40		32(4.22)	5 (0.38)	38.333	0
41-50		18(2.37)	14 (1.11)	4.803	0.028
51-60		36(4.74)	5 (0.38)	44.891	0
61-70		32(4.22)	11 (0.87)	25.336	0
71-80	15(1.98)	8 (0.64)	7.544	0.006	
>80	18(2.37)	8 (0.64)	11.207	0.001	
Gender	Male (cases)	445	799		
	Positive	146 (32.81)	54(6.76)	143.757	0
	Female (cases)	314	459		
	Positive	116 (36.94)	41(8.93)	90.38	0

Pathogen	CO	H3	RSV	Influ	Boca	MP	ch	Influ	HR	H3	PIV	ADV	MP	Total
ADV	1	0	0	1	1	0	0	0	1	0	0	0	0	4
Influ A		1	1	2	0	0	0	0	1	1	0	1	0	6
HRV					2	2	0	0	0	0	0	1	4	9
MP						1	0	0	5	0	1	0	0	7
PIV							1	0	0	0	0	0	1	2
Influ B								2	0	0	0	0	0	2
RSV								1	0	0	0	1	0	2
Boca									1	0	0	1	0	2
MPV									1	0	0	0	1	2
ch											1	0	0	1
COV												1	0	1
A/H3N2													1	1
Total	1	1	1	3	3	3	1	3	9	1	2	5	7	39