

Clinical Presentation of COVID 19 Patients Attending A Tertiary Care Hospital

Abeer Khan¹, Bharath K², Brinda Basavaraju³

How to cite this article:

Abeer Khan, Bharath Kempanna, Brinda Basavaraju. Clinical Presentation of COVID 19 Patients Attending A Tertiary Care Hospital. Indian J Emerg Med 2020;6(4):227-232.

Author's Affiliation: ¹Post Graduate, ²Assistant Professor, ³Professor, Department of Emergency Medicine, Kempegowda Institute of Medical Sciences, KR Road, VV Puram, Bangalore, Karnataka 560004, India.

Corresponding Author: Bharath K, Assistant Professor, Department of Emergency Medicine, Kempegowda Institute of Medical Sciences, KR Road, VV Puram, Bangalore, Karnataka 560004, India.

E-mail: bharathkemp@gmail.com

Abstract

Background: The coronavirus disease (COVID 19) pandemic, which originated in the city of Wuhan, China, has quickly spread to various countries including India. It has a range of clinical manifestations. There is still insufficient data on symptoms that easily help to identify mild and moderate cases which is necessary to contain the spread.

Aims: In this study, we aim to identify the presenting symptoms of Category A (mild) and Category B (moderate) patients diagnosed to have COVID 19.

Settings and Design: A prospective study was conducted in 56 adult patients with laboratory confirmed COVID 19 infection over a period of two months in a tertiary care centre in Bangalore, India.

Methods and Material: Clinical data was collected from these patients and then they were classified into two categories: Category A which included the mild cases and Category B which included the moderate cases. Those with severe and critical illnesses were excluded from the study. Statistical Package for Social Sciences (SPSS) for Windows Version 22.0 Released 2013 was used to perform statistical analyses.

Results: A total of 56 patients were included in the study of which of which 30 were males and 26 were females. Diabetes mellitus was the most common co morbidity. The most common clinical presentation among both the categories of patients were fever (85.7%) and cough (82.1%) followed by fatigue (78.6%), sore throat (58.9%), ageusia (33.9%) and anosmia (25%), headache (23.2%), vomiting (19.6%). Shortness of breath (88%) and chest pain (32%) were present mainly in the category B patients. Gastrointestinal symptoms (10.7%) were also reported in a few category A patients.

Conclusion: Fever and cough were the most common findings among both the groups. Shortness of breath and chest pain were identified as symptoms of concern among the moderate cases of COVID 19 and hence these can help clinicians to predict the disease severity. Gastrointestinal symptoms present in those with mild disease even without respiratory symptoms was an important finding.

Keywords: COVID 19; Category; Mild; Moderate; Fever.

Introduction

In December 2019, a novel coronavirus (SARS-CoV-2) emerged and was identified first at Wuhan city in Hubei province of China and it has rapidly

spread globally including India.^{1,2,3} In India, the first case of COVID-19 was identified on January 30, 2020 and the number has been increasing steadily due to local transmission as well as due to foci of community transmission.⁴ They can



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0.

present with varied clinical features, ranging from asymptomatic to acute respiratory distress syndrome. The most common symptoms at onset of COVID-19 include fever, cough, and shortness of breath. Though majority of the cases have mild to moderate symptoms, the virus is contagious.⁵ If the virus is not causing serious symptoms, people are less likely to recognise it, take protective measures, or seek medical help, thus affecting the public health efforts to contain the disease. As the virus has continued to spread, there is a rise in the mild to moderate cases. Healthcare professionals need to recognise these to minimise the further spread of the disease among the population, health systems, and economic risks and accurately portray total numbers of COVID-19 infections.⁶

Hence it is important to know the symptoms of mild and moderate disease that may help clinicians in more accurately triaging cases and also to help prevent it from progressing to more severe stages.

Overall, there is still scarce and inconclusive evidence on symptoms that easily help to identify mild and moderate cases. In this study, we aim to identify the presenting symptoms of Category A(mild) and Category B(moderate) patients diagnosed to have COVID 19.

Materials and Methods

We collected data from 56 adult patients with laboratory confirmed COVID-19 infection in a tertiary care hospital during a period of two months.

Patients over the age of 18 years who presented to the admission triage area with mild to moderate symptoms of COVID 19 and laboratory confirmed COVID 19 were included during the period of June 2020 to August 2020. Those with age below 18 years and with severe disease symptoms were excluded from the study.

COVID-19 was diagnosed by real-time reverse transcription-polymerase chain reaction (RT-PCR) detection of SARS-CoV-2 from nasopharyngeal swabs.

All patients were classified belonging to Category A (mild symptoms) or Category B (moderate symptoms) according to the COVID-19 Government of India Ministry of Health and Family Welfare Directorate General of Health Services (EMR Division).⁷

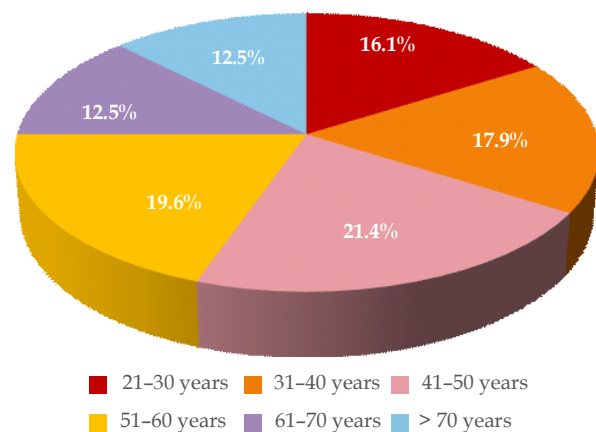
Category A (Cat A) patients were those with: Mild symptoms having uncomplicated upper respiratory tract infections SpO₂ ≥94% at room air Respiratory

rate (RR) ≤24/min. Without any evidence of hypoxaemia or breathlessness Category B (Cat B) patients were those with: Moderate symptoms of Pneumonia. SpO₂ 90-94% at room air RR 24-30/min. Without signs of severe disease.

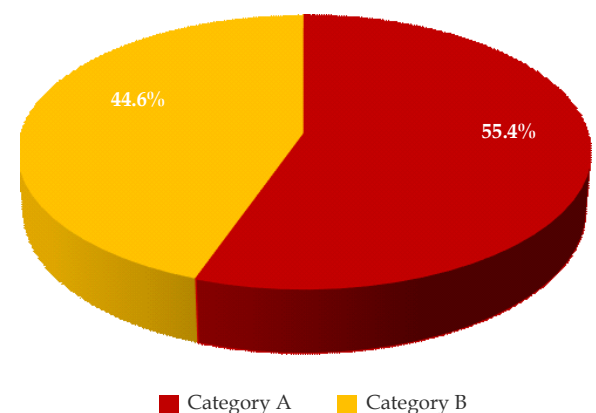
Statistical Package for Social Sciences (SPSS) for Windows Version 22.0 Released 2013 was used to perform statistical analyses. Descriptive Statistics such as Mean, SD and percentage were used to represent the data. Chi Square Test was used to compare the different clinical characteristics between the two categories. A p value < 0.05 was considered to be statistically significant.

Results

In our study, majority of the patients (21.4%) were in the age group of 41-50 years (Graph 1). Out of 56 patients, 30 were males and 26 were females. There were 31 patients who belonged to Cat A and 25 patients who belonged to Cat B (Graph 2).

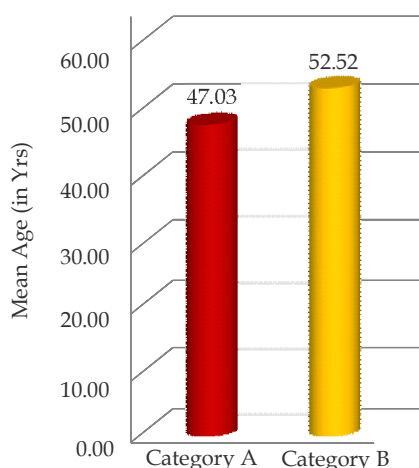


Graph 1: Distribution of age among study patients.



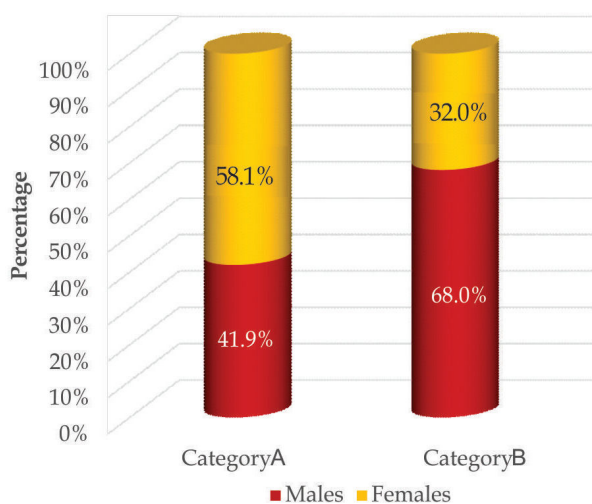
Graph 2: Distribution of study patients based on disease category.

Among the two categories, the mean age in Cat A patients was 47.03±14.76 whereas the mean age in Cat B patients was 52.52±14.15 as shown in Graph 3.



Graph 3: Agewise distribution among the 2 categories.

Out of 31 patients in Cat A, 13 were males and 18 were females whereas out of 25 patients in Cat B, 17 were males and 8 were females and this was statistically significant (p value<0.04, Graph 4).



Graph 4: Genderwise distribution between 2 categories.

Co morbidities were present in a total of 35 patients. The Table 1 and Graph 5 show the prevalence of different co morbid conditions between the two categories. Diabetes mellitus was the most common comorbidity observed in both category of patients, about 68% of patients in Cat B and 38.7% of patients in Cat A and this was statistically significant (p value<0.03).

Hypertension was the second most common co morbidity present in both the categories (40% in Cat B and 32.3% in Cat A)

Rest of the comorbidities like chronic obstructive pulmonary disorder (12%), coronary artery disease (12%) and chronic kidney disease (12%) were mostly present in Cat B patients as shown in Table 1.

CKD was present in 12% of Cat B patients and this was statistically significant (p value<0.04).

About 54.8% of patients in Cat A no reported chronic health conditions and this was statistically significant (p value<0.003).

Table 1: Comparison of prevalence of different co-morbid conditions between 2 groups using Chi Square Test.

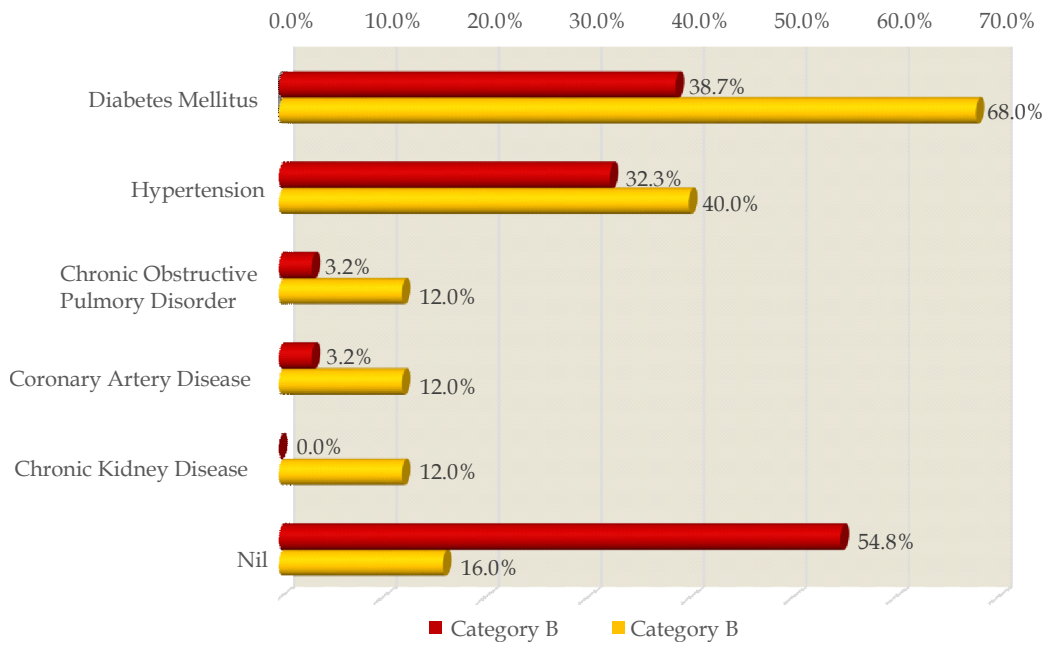
Co-morbidity	Category A		Category B		v ² Value	P-Value
	n	%	n	%		
	Diabetes Mellitus	12	38.7%	17		
Hypertension	10	32.3%	10	40.0%	0.361	0.55
Chronic Obstructive Pulmonary Disorder	1	3.2%	3	12.0%	1.606	0.21
Coronary Artery Disease	1	3.2%	3	12.0%	1.606	0.21
Chronic Kidney Disease	0	0.0%	3	12.0%	3.931	0.04*
Nil	17	54.8%	4	16.0%	8.907	0.003*

* Statistically Significant.

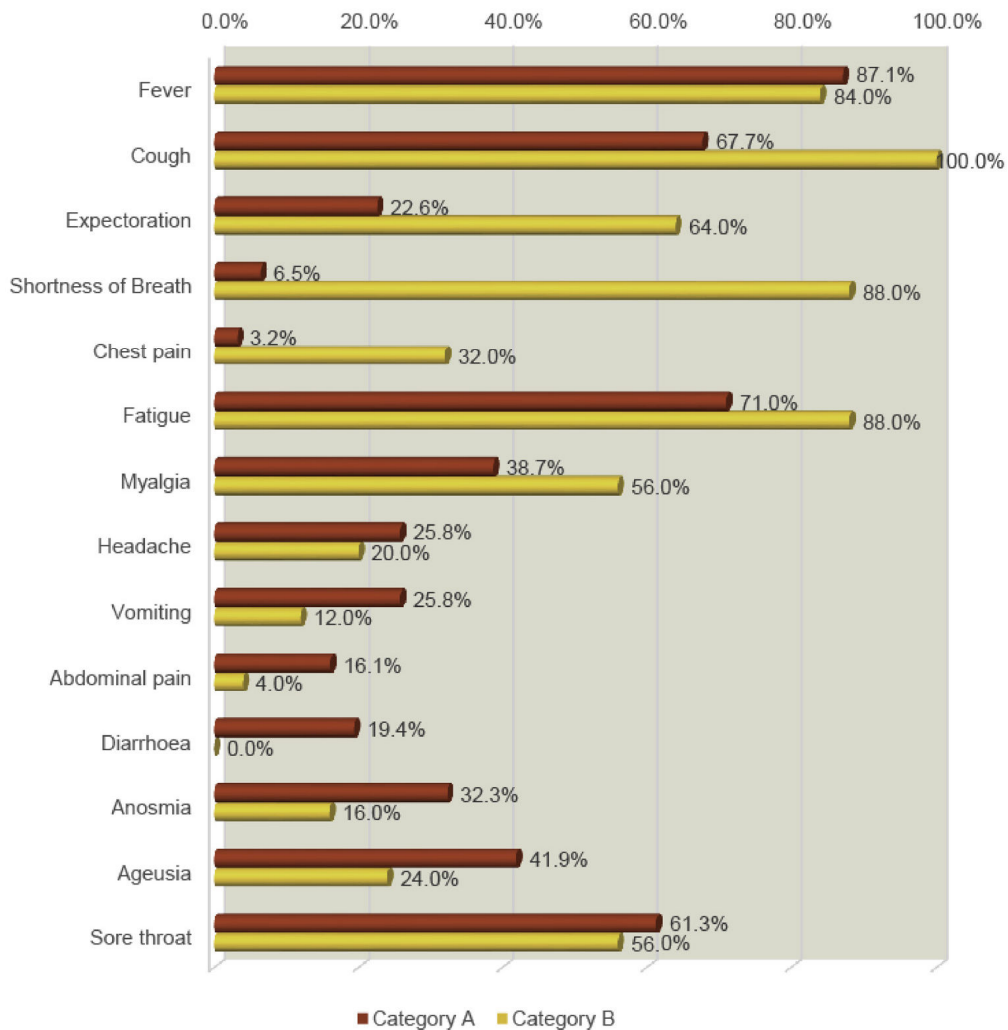
Table 2: Comparison of symptomatology between Category A and Category B using Chi Square test.

Symptoms	Category A		Category B		Total		χ ² Value	P-Value
	N	%	N	%	N	%		
Fever	27	87.1%	21	84.0%	48	85.7%	0.108	0.74
Cough	21	67.7%	25	100.0%	46	82.1%	9.818	0.002*
Expectoration	7	22.6%	16	64.0%	23	41.1%	9.810	0.002*
Shortness of Breath	2	6.5%	22	88.0%	24	42.9%	37.580	<0.001*
Chest pain	1	3.2%	8	32.0%	9	16.1%	8.495	0.004*
Fatigue	22	71.0%	22	88.0%	44	78.6%	2.385	0.12
Myalgia	12	38.7%	14	56.0%	26	46.4%	1.663	0.20
Headache	8	25.8%	5	20.0%	13	23.2%	0.262	0.61
Vomiting	8	25.8%	3	12.0%	11	19.6%	1.671	0.20
Abdominal pain	5	16.1%	1	4.0%	6	10.7%	2.128	0.15
Diarrhoea	6	19.4%	0	0.0%	6	10.7%	5.419	0.02*
Anosmia	10	32.3%	4	16.0%	14	25.0%	1.951	0.16
Ageusia	13	41.9%	6	24.0%	19	33.9%	1.986	0.16
Sore throat	19	61.3%	14	56.0%	33	58.9%	0.160	0.69

* Statistically Significant



Graph 5: Prevalence of different co-morbid conditions between 2 groups.



Graph 6: Distribution of symptomatology between Category A & Category B.

Symptomatology in both the categories has been summarized in Table 2 and Graph 6.

In our study, we found that overall, the most common presenting symptom was fever (n=48, 85.7%) which was more common in Cat A (n=27,87.1%) patients compared to Cat B (n=21,84%).

This was followed by cough (n=46, 82.1%) which was present in all Cat B patients (n=25,100%) compared to Cat A patients in whom it was present in about 67.7% of the patients and this was statistically significant. (p value<0.002).

Cough was associated with expectoration in about 23 of the patients (41.1%) and was found to be more common among the Cat B patients (n=16,64%) compared to Cat A (n=7,22.6%) and this was also statistically significant (p value<0.002).

Fever and cough were followed by symptoms of fatigue (n=44,78.6%), myalgia (n=26,46.4%) and sore throat (n=33, 58.9%).

Shortness of breath (n=24, 42.9%) was seen mainly in the Category B patients compared to Category A and this was statistically significant (p value<0.001)

Anosmia (n=14, 25%) and Ageusia (n= 19, 33.9%) were also reported, and were more commonly seen among the Category A patients.

Headache and Vomiting was present in 13(23.2%) and 11(19.6%) patients respectively.

Only 9 (16.1%) patients complained of chest pain, while gastrointestinal symptoms in the form of abdominal pain were reported by 6 patients whereas another 6 of them reported to have diarrhoea. These were mainly present in Category A patients and was of statistical significance (p value<0.02).

The vast majority of patients presented with more than one symptom.

Discussion

The majority of patients with COVID 19 infection are thought to be pauci symptomatic and it is these patients who remain potentially infectious. They must be identified and confined in order to reduce transmission.

We studied the clinical presentation of 56 patients infected with COVID 19 and compared them between A (mild) and B (moderate) categories.

In our study, majority of the patients belonged to the age group of 41-50 years with the mean age in Cat A patients being 47.03 and in Cat B patients being 52.52.

Studies conducted in the Chinese population also showed increased prevalence among these age groups. The median age group of affected patients in studies conducted by Guan et al,² Huang et al¹ and Xia et al³ was 47, 49 and 48 respectively. Increased susceptibility of infection in the middle-aged population is probably because they constitute the working population of the country leading to an increase in social contact. The risk also, steadily grows with age due to pre-existing medical conditions.

Our study showed male preponderance and majority of them belonged to Cat B. Similarly, study conducted by Mohan et al⁴ in a large cohort of COVID 19 affected patients in North India also showed an increased number of cases among males.

Our study showed higher incidence of co morbid conditions among Cat B patients. Diabetes mellitus was reported to be the most common underlying co morbid condition among both the categories. This is similarly seen in studies by Mohan et al⁴ and Huang et al¹ where majority of the patients were diabetic. This is in contrast to the study conducted by Betty Y et al⁸ in Washington where majority of the patients had hypertension and cardiovascular disease as the most common co morbidity.

In the present study, we found that in both the categories of patients, fever (85.7%) was the most common clinical presentation followed by cough (82.1%).

Other symptoms included fatigue (78.6%), sore throat (58.9%), ageusia and anosmia (33.9 and 25%), headache (23.2%), vomiting (19.6%) and there was no statistical significance among these symptoms between the two categories.

It was also observed that Cat B patients had shortness of breath, expectoration and chest pain as more common symptoms compared to Cat A patients and this was statistically significant in our study.

These results are in correlation with other Chinese studies by Guan et al² Huang et al¹ Liu et al³ and Xia et al⁵ and we found our results to be statistically significant. But a multicentre study conducted by Lechien et al⁹ on the European population in patients with mild to moderate COVID 19 infection showed the most common

presentations to be headache (70.3%), anosmia (70.2%), nasal obstruction (67.8%) and asthenia (63.3%). The differences between both the world regions, especially about olfactory and gustatory dysfunctions, could be related to differences in the genetic pattern of virus (potential mutations).

Less common symptoms included gastrointestinal symptoms in the form of abdominal pain (10.7%) and diarrhoea (10.7%) which were seen mainly in the Cat A patients and was of statistical significance. A recent study showed that the virus was detected in stool samples of patients with abdominal symptoms.¹⁰ Therefore, while paying great attention to patients with the respiratory system as the primary symptom, more attention should also be paid to patients with headaches, dizziness, diarrhoea, anorexia, nausea, and vomiting.¹¹

Limitations

- The sample size in the current study is characterised by a small cohort. The spread of the pandemic to various geographic locations, age groups and comorbid patients may behave differently.
- Absence of follow up.

Conclusion

The clinical presentation of mild-to-moderate Covid-19 patients can be varied.

According to the findings of our study, fever and cough were the most frequent symptoms in both the categories. Among Cat B patients, shortness of breath and chest pain can be treated as cause of concern. Hence, recognizing these symptoms can be used by health care workers as an indicator for supportive care and hospitalization which may further help to prevent progression to severe disease. Also, these can help clinicians to predict the disease severity, disease classification of patients and to take effective treatment measures in advance in an effort to control the pandemic.

Gastrointestinal symptoms can be present in those with mild disease even without respiratory symptoms and this could be of particular importance considering the rapid human to human transmission among close contacts which could be related to gastrointestinal viral infection and potential oro-faecal transmission.

References

1. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The lancet*. 2020 Feb 15;395(10223):497–506.
2. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX et al. Clinical characteristics of coronavirus disease 2019 in China. *New England journal of medicine*. 2020 Apr 30;382(18):1708–20.
3. Liu K, Fang YY, Deng Y, Liu W, Wang MF, Ma JP et al. Clinical characteristics of novel coronavirus cases in tertiary hospitals in Hubei Province. *Chinese medical journal*. 2020 Feb 7.
4. Mohan A, Tiwari P, Bhatnagar S, Patel A, Maurya A, Dar L et al. Clinico- demographic profile and hospital outcomes of COVID-19 patients admitted at a tertiary care centre in north India. *Indian journal of medical research*. 2020 Jan 1;152(1):61
5. Xia L, Chen J, Friedemann T, Yang Z, Ling Y, Liu X et al. The Course of Mild and Moderate COVID-19 Infections—The Unexpected Long-Lasting Challenge. In *Open Forum Infectious Diseases* 2020 Sep (Vol. 7, No. 9, p. ofaa286). US: Oxford University Press.
6. Michelen M, Jones N, Stavropoulou C. In patients of COVID-19, what are the symptoms and clinical features of mild and moderate cases. *Centre for Evidence-Based Medicine* <https://www.cebm.net/covid-19/in-patients-of-covid-19-what-are-the-symptoms-and-clinical-features-of-mild-and-moderate-case/> accessed. 2020 Apr;16.
7. Clinical Management Protocol: COVID-19 Government of India Ministry of Health and Family Welfare Directorate General of Health Services (EMR Division) Version5. 03.07.20.
8. Yang BY, Barnard LM, Emert JM, Drucker C, Schwarcz L, Counts CR et al. Clinical characteristics of patients with coronavirus disease 2019 (COVID-19) receiving emergency medical services in King County, Washington. *JAMA Network Open*. 2020 Jul 1;3(7):e2014549.
9. Lechien JR, Chiesa - Estomba CM, Place S, Van Laethem Y, Cabaraux P, Mat Q et al. Clinical and epidemiological characteristics of 1,420 European patients with mild - to - moderate coronavirus disease 2019. *Journal of internal medicine*. 2020 Apr 30.
10. Zhang H, Kang Z, Gong H, et al. The digestive system is a potential route of 2019 - nCov infection: a bioinformatics analysis based on single - cell transcriptomes. 2020.
11. Lapostolle F, Schneider E, Vianu I, Dollet G, Roche B, Berdah J et al. Clinical features of 1487 COVID-19 patients with outpatient management in the Greater Paris: the COVID-call study. *Internal and Emergency Medicine*. 2020 May 30.