

Research and Analysis on the Diagnosis and Treatment of COVID-19 Patients After the Full Opening of Epidemic Prevention and Control - A Population Based Study

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Abstract: *Research background:* Since the gradual liberalization of the epidemic in China in November 2022, economic activities have gradually resumed, the incidence of COVID-19 admitted to our hospital has gradually decreased, the symptoms and the toxicity have gradually decreased. *Objective:* By analyzing the research and analysis of the treatment of patients infected with COVID-19 infection in the Third People's Hospital of Sichuan Province from December 2022 to February 2023, can help to understand the clinical manifestations of COVID-19 virus infection after the opening of the epidemic in China, and guide patients to standardize medical treatment. The follow-up research and treatment of COVID-19 after the epidemic is released for reference. *Research method:* inclusion standard: patients with COVID-19 pharyngeal swab test positive. We used the "Case Information System and Prevention and Control System" to carry out statistical analysis and retrospectively study of the COVID-19 infection since the opening of the epidemic. *Research results:* In this study, the total number of outpatient visits to respiratory medicine in the Third People's Hospital of Sichuan Province from December 1, 2022 to February 28, 2023 was 4,582 people/90 days. The total hospitalization rate was 7.88% (361/4582), due to the COVID-19 infection is 1.55% (71/4582); men account for 0.94%, women account for 0.61%, and the total mortality rate after hospitalization is 1.10% (4/361), and the total mortality rate of patients after the novel COVID-19 infection is 0.55% (2/361), as shown in Figure 1, Figure 2 and Figure 3. After national vaccination, the main symptoms of patients infected with COVID-19 are fever, soreness all over the body, mainly lung invasion changes, the number of severe patients and respiratory failure is small, indicating that its toxicity is reduced. With the largest number of cases in the 50-75-year-old group, accounting for 36.61% (26/71) and a mortality rate of 2.82% (2/71). Common with respiratory failure and abnormal liver function. The more complications, the older age, the more days of hospitalization, and the higher cost of hospitalization. *Conclusion:* Since the vaccination against the COVID-19 in China, the mortality rate due to the COVID-19 in our hospital is low, and the incidence of severe clinical manifestations is low, which shows that the toxicity of COVID-19 infection has gradually decreased with COVID-19 vaccination. This study found that the older patients with multiple complications, the more hospitalization days, the higher the cost of hospitalization. For elderly patients with a variety of complications and complications, recommended to be hospitalized in time.

Keywords: COVID-19, Epidemiology, Hospitalization Analysis, Fever, Reduced Virulence, Complications, Complications

1. Introduction

Since the outbreak of COVID-19 in December 2019, there have been a large number of infections in various countries around the world [1]. It poses a threat to public health security around the world and seriously affects the economic development of the world, and China has also suffered a huge impact [2]. According to the decision-making and deployment of the Central Committee of the Communist Party of China and the State Council of China, from January 8, 2023, the COVID-19 infection will be adjusted from "B Class A tube" to "B tube" [3]. Therefore, the majority of the people are eagerly concerned about the adjustment of epidemic prevention and control policies. According to the relevant person in charge of monitoring of the State Administration for Disease Control and Prevention of China, since the beginning of 2020, the sudden outbreak of the COVID-19 epidemic has taken different measures around the world. China has taken public health measures to curb the rapid spread of the epidemic and won the epidemic in Wuhan and Hubei in months [4]. In May 2020, the epidemic turned to normal prevention and control, successfully dealing with more than 100 cluster epidemics, greatly reducing the incidence of seriously ill and dead patients, and winning valuable time for the development and application of vaccines and drugs, as well as the preparation of medical resources. Such measures have also saved thousands of lives and played a huge role in the prevention and control of COVID-19 [5-6]. Since November 2022, China's epidemic prevention and control has entered a new stage. Local departments have accelerated the implementation of vaccine-strengthening immunization strategies, made good preparations for medical resources and drugs, highlighted epidemic prevention and control in key areas of key populations, made every effort to strengthen the medical treatment of patients, and achieve a stable transition of epidemic prevention and control in a relatively short period of time [7]. At this stage, the universal vaccination against the COVID-19 has enabled the masses of the people to be collectively immunized. During the three-year COVID-19 epidemic, more than 200 million people infected with the COVID-19 were diagnosed and treated in China, nearly 800,000 seriously ill patients were effectively treated, and the COVID-19 mortality rate remained at the lowest level in the world [8]. Later, there was no widespread spread of the epidemic caused by the large-scale movement of people during the holiday in China, and a major decisive victory in epidemic prevention and control [9]. Finally, through the joint efforts of people all over the world, COVID-19 vaccination, local prevention and control measures, we have finally ushered in a full opening up. Such measures rely on the COVID-19, resulting in significantly lower mortality and severity rates and reduced toxicity than in the early stage. Under the national policy of adjusting the COVID-19 infection from "B A" to "B B", our medical institutions are under great pressure. Finally, respiratory medicine in medical institutions has a heavy task and a lot of pressure, But the epidemic prevention and control work can not be slackened [10]. This study is to analyze the diagnosis and treatment of COVID-19 patients by medical

institutions after the full opening of epidemic prevention and control. Our research unit is the number of respiratory diseases and COVID-19 diseases diagnosed and treated by the Department of Respiratory Medicine of the Third People's Hospital of Sichuan Province from December 1, 2022 to February 28, 2023. Finally, we carried out research and statistical analysis, and all the data came from the hospital.

1. Accumulated from December 1, 2022 to February 28, 2023

Number of outpatients of respiratory medicine in December 2022: 1888 people / 31 days 60.9 peoples / day

January 2023 1667 people / 31 days 53.8 peoples / day

February 1027 people / 28 days 36.7 peoples / day

4582 people/28+31+31 days 50.9 peoples/day

2. The total number of people living and discharged is 361.

3. 77 people were hospitalized in December 2022, 2 deaths (COVID-19 (+) 1 person) , Men 49 women 28 , Average days 11.64 , Average cost 85636.63 yuan , COVID-19 20 Men 16 Women 4

Age segmentation

Under 25 years old 0

25-50 years old 4 men 2 women 2 of which COVID-19 men 1 women 0

50-75 years old 32 men 19 women 13 of which COVID-19 men 6 women 4

75-100 years old 41 men 28 women 13 of which COVID-19 men 9 women 0

4.149 people were hospitalized in January 2023, 1 person died (COVID-19 (+) 1 person) , 88 men and women 61 , average days 12.96 , average cost 9127.10 yuan , COVID-19 46 men 26 women 20

Age segmentation

Under 25 years old 1 men 0 women 1 of which COVID-19 men 0 women 1

25-50 years old 9 men 3 women 6 of which COVID-19 men 0 women 3

50-75 years old 75 men 46 women 29 of which COVID-19 men 16 women 9

75-100 years old 64 men 39 women 25 of which COVID-19 men 10 women 7

5.In February 2023, 135 people were hospitalized and 1 person died (COVID-19 (-)).male 77 female 58, average days 10.43, average cost 7657.47 yuan , COVID-19 5 Men 1 Women 4

Age segmentation

Under 25 years old 0 men 0 women 0

25-50 years old 13 men 6 women 7 of which COVID-19 men 0 women 1

50-75 years old 68 men 40 women 28 of which COVID-19 men 0 women 1

75-100 years old 54 men 31 women 23 of which COVID-19 men 1 women 2

Figure 1. Analysis of outpatient and inpatient situation of the Third People's Hospital of Sichuan Province.

Analysis table of the diagnosis and treatment of respiratory medicine in Sichuan Third People's Hospital from December 1, 2022 to February 28, 2023

Month	Number of hospitalizations	COVID-19 (+)	Die	COVID-19 (+) +Die
12	77	20	2	1
1	149	46	1	1
2	135	5	1	0
	361	71	4	2

Figure 2. COVID-19 hospitalizations and deaths.

2. Research Methods

We used the "Case Information System and Prevention and Control System" to diagnose and treat 4,582 people in the respiratory medicine department of our hospital from December 2022 to February 2023 since the epidemic was released, with 361 hospitalizations. We meet the number of 71 people according to the inclusion criteria and exclusion criteria. We study and analyze according to age. I divided all COVID-19 (+) patients into 0-25 years old (Group A), 25-55 years old (Group B), 55-75 years old (Group C), 75-100 years

old (Group D), etc. We study the gender distribution, vaccination, complications, average hospitalization days and average hospitalization costs of COVID-19 (+) patients, so as to understand and analyze the basic situation of patients infected with COVID-19.

3. Research Results

Our results show that 71 people meet the inclusion criteria, with a mortality rate of 2.82% (2/71) and a cure rate of 97.18% (69/71). The basic characteristics of all patients are shown in Figure 4. There are 43 men and 28 women, as shown in Figure 5. Cases have been reported in all four age groups. 0-25 years old, group A cases 1, 25-55 years old, group B cases 5, 55-75 years old, group C cases 36, 75-100 years old, group D cases 29 cases,

including 50-75 years old, the largest number of cases in Group C, as shown in Figure 6. All 71 patients with COVID-19 (+), 41 were vaccinated, and 30 were not vaccinated. The vaccination situation is shown in Figure 7. The average hospitalization cost of Group A is 1084.02 yuan, the average hospitalization cost of Group B is 6,836.20 yuan, the average hospitalization cost of Group C is 11011.40 yuan, and the average hospitalization cost of Group D is 12,394.11 yuan. The proportion of the average number of days of hospitalization in groups A, B, C and D4 is shown in Figure 8. Finally, the proportion of their comorbidities in all patients is shown in Figure 9. The comorbidities include tumors, respiratory failure, diabetes, hypertension, abnormal liver function, heart failure, renal dysfunction, etc. The distribution of COVID-19 CT lesions in all 71 patients with COVID-19 (+) is shown in Figure 10.

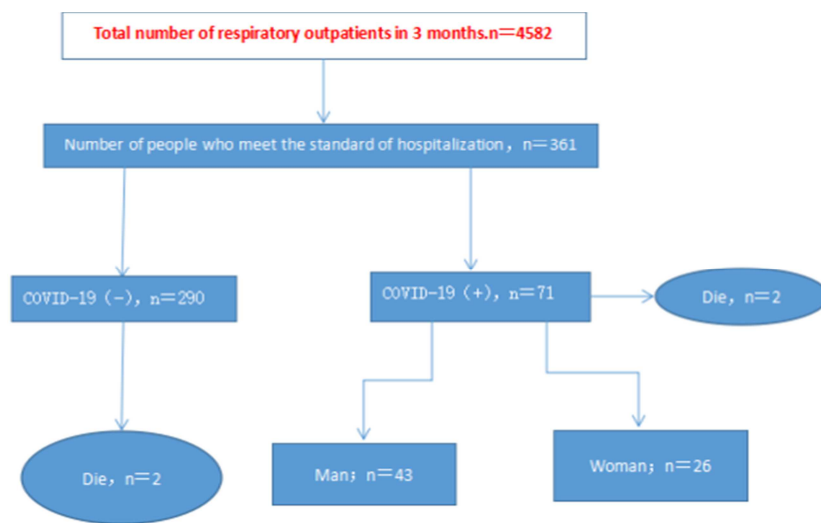


Figure 3. Inpatient situation analysis.

Age group	Man	Woman	Number of vaccinations	Combine d Tumor	Respiratory failure	Diabetes mellitus	Hypertension	Heart failure	Renal insufficiency	Hepatic insufficiency	Cost of hospitalization (RMB)	Average length of stay (day)
0-25y	0	1	1	0	0	0	0	0	0	0	1084.02	4
25-50y	1	4	5	0	1	0	1	0	0	0	6836.20	14.
50-75y	22	14	26	4	14	6	13	5	5	5	11011.40	15
75-100y	20	9	9	1	13	6	15	10	6	2	12394.11	29
total	43	28	41	5	28	12	29	15	11	7	7831.43	15.5

Figure 4. Hospitalization of 4 age groups.

Distribution map of men and women COVID-19 (+)

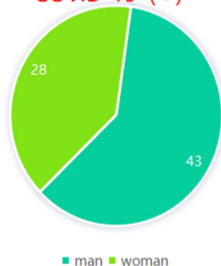


Figure 5. Distribution map of men and women COVID-19(+).

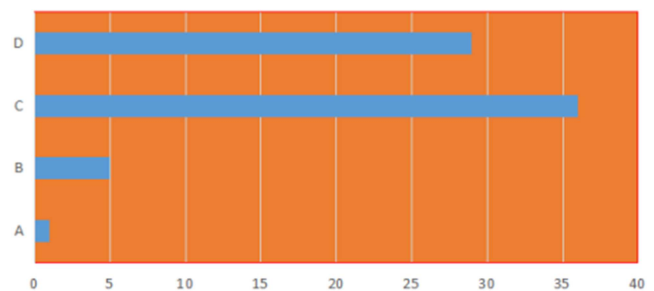


Figure 6. Distribution of cases in 4 age groups.

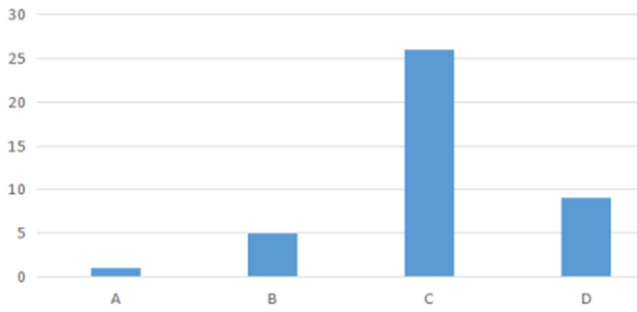


Figure 7. Vaccination distribution.

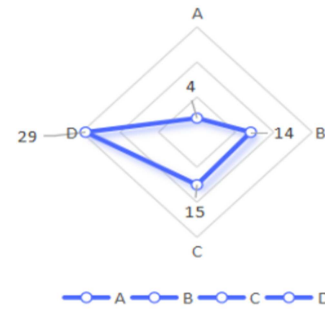


Figure 8. Average number of days in hospital.

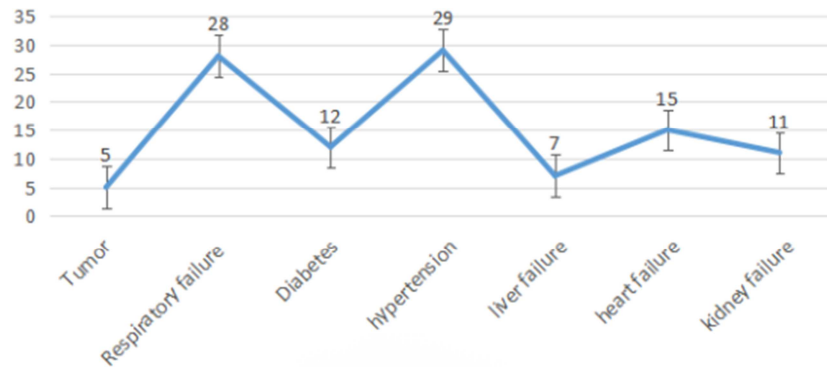


Figure 9. Distribution of complication.

Distribution of lung lesions of COVID-19 (CT)

lung lobe	Number of cases	Percentage	lung lobe	Number of cases	Percentage
RUL	3	4.2	LUL	1	1.4
RML	2	2.8	LLL	1	1.4
RLL	5	7.0	double lung lobe	59	81.69

Distribution of lung lesions of COVID-19 (CT)

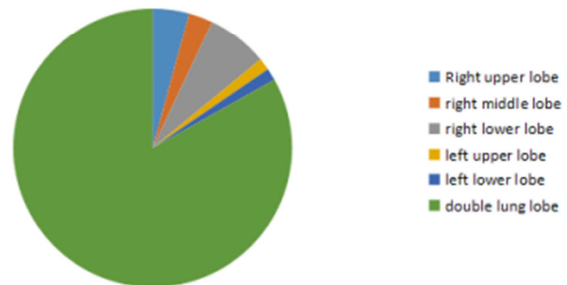


Figure 10. Distribution of lung lesions of COVID-19 (CT).

4. Discussion

Since the outbreak of COVID-19 infection in 2020, with the efforts of human beings all over the world, the implementation of epidemic prevention and control measures, vaccination and other measures, the virulence of the COVID-19 infection has decreased, and the number of seriously infected people and deaths has decreased [11]. The main causes of death in this group are tumors, respiratory failure, diabetes, hypertension, liver dysfunction, heart failure, kidney dysfunction, etc., due to the reduced comprehensive immunity of these patients. Some studies have found that when the toxicity of the COVID-19 decreases, the main clinical manifestations of patients are similar to those of upper respiratory tract infection, mainly characterized by fever, systemic soreness, low back pain, etc. The main clinical treatment methods are

symptomatic treatment and traditional Chinese medicine treatment [12-13]. Since the opening of epidemic prevention and control in China, the hospitalization rate of patients infected with COVID-19 infection in our hospital has gradually shown a downward trend from December 1, 2022 to February 28, 2023, with 26.0% (20/77), 31.0% (46/149) and 3.7% (5/135). Our study is that from December 1, 2022 to February 28, 2023, the Third People's Hospital of Sichuan Province has diagnosed and treated 4,582 people in respiratory medicine, 71 hospitalized for the COVID-19, with a total mortality rate of 1.1% (4/361), and a mortality rate of people infected with the COVID-19 has been 2.82% (2/71). Judging from the average number of days a patient has been hospitalized and the cost of hospitalization, we can draw such a conclusion. That is, when elderly patients have multiple complications and complications, the older such patients, the more complications and complications, the more

hospitalization days the patient will cost. Finally, we recommend timely hospitalization for elderly patients with a variety of complications and complications, and early intervention is easier to control the disease [14]. The main cause analysis is the patient's aging, complications, complications and other factors, which lead to a decrease in the patient's immunity and more prone to severe clinical manifestations and death [15-16]. From the distribution of pulmonary lesions in chest imaging examination (CT), we found that patients with COVID-19 infection with complications are more likely to develop pulmonary lesions, especially in both lungs. Therefore, when elderly patients with COVID-19 infection patients with a variety of complications and complications, they should be treated as soon as possible and the hospitalization pointer should be actively arranged.

Author's Statement

This study is approved by the author, and its case data is used for academic research. The research data is provided by Wen jing; email address is wenjing284703707@163.com, ORCID: 0009000661363448, and all authors have no conflicts of interest.

Wen jing: Write a paper.

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