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RISK FACTORS ASSOCIATED WITH MORTALITY AMONG PATIENTS WITHCOVID-19 IN ALMATY (KAZAKHSTAN)

SARS-CoV-2 caused by beta-coronavirus RNA spread from the Chinese city of Wuhan in December 2019 and it had been a global pandemic. Today, more than sixty-six million cases of infection are registered in the world, moreover above one and half million people die. For today's situation, 137 000 individuals are infected and approximately 2 000 people die in Kazakhstan.

To investigate the independent risk factors associated with Coronavirus-2 Severe Acute Respiratory Syndrome and mortality rate in Almaty (Kazakhstan).

A retrospective study was provided according to the participants' medical records with the COVID-19 and who were in the hospital in the period from June till August of 2020 in city hospital of Almaty, Kazakhstan. Among all 278 patients which were included to our issue 76 of them were unsurvived, and the rest were survived.

The survey has been conducted in a retrospective design of the medical records of those people with COVID-19 and patients who have been registered in Almaty city hospital, Kazakhstan in the period of June to August of 2020. Among all 278 participants who attached to our release, 76 of them were dead.

The correlation indirectly out of the seriousness of hepatocytes' cytolysis and the development in deceased patients severe type lymphopenia cause of the liver damage is a direct cytopathic effect on hepatocytes SARSCov2, since an absolute decrease in lymphocytes caused by virus-induced apoptosis correlated with the severity of viral load and is a significant and independent predictor of death.

Key words: Covid-19, causes, deaths, ARDS, pandemic, heart failure, multiple organ failure, risk factors, medical management, covid-19, postmortem medical records.

Introduction

A very highly attention from the all over the world was attended to the Covid-19, which is known as a viral disease with the high level of contagiousness and which was firstly appeared in 2019 in a little Chinese city Wuhan. Behind time it was clear that the Covid-19's property of a big group of coronaviruses, then started to be well-known as SARS COV-2 [1,2].After that the WHO called this illness as Covid 19. This disease is not restricted for a concrete location, so it has been distributed the planet without delay, and the cases which were happened due to this disease around the world. Many thousands of individuals from all over the world were died because of the Covid-19 and the risk's still remaining [3,4]. The influence of the Covid-19, together with the following quarantine, showed a very bad influence to the economy situation of the community, especially on production area, that will convey the impression for years [5-9].

Materials and Methods

In the period of quarantine (from June to August of 2020) [10,11] there was provided a retrospec- tive research according to the participants' medical records with the COVID 19 and who were observedin the hospital in the city hospital of Almaty, Ka- zakhstan. Among all 278 patients which were in- cluded to our issue 76 of them were unsurvived, and the rest were survived.

The survey has been conducted in a retrospective design of the medical records of those people with COVID-19 and patients who have been registered in Almaty city hospital, Kazakhstan in the period of June to August of 2020. Among all 278 participants who attached to our release in the 2 stages. First was conducted with 188 survivide patients. Then 2-nd stage was providing with the 90 participants. Among the 278 participants the 76 of them were dead.

Results and Discussion

To this research were attached a 278 of participants who were categorized into 2 groups related to such parameter as gender, that is revealed in the Table-1.

Table 1 – Gender categories

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	78	41,5	41,5	
Female	168	58,5	58,5	41,5
Total	188	100,0	100,0	100,0

As it may be shown from the above graph, through the participants, who were attached to this issue, more than half of them were women with 58,5%. If we'll look to the numbers, it's clearly showed us that the incidence of the disease was more increased in female than in male.

The 8 categories of age groups were created for the participants attached in this issue (Table2).

According to the Table-2, the majority of patients were in the category of 50 to 59 years, followed by 60 to 69 years, which is 27,7% and 21,3%, respectively. Thus, the largest numberof participants related to the age belongs to theage categories of 50 to 69 yrs. There is also a minimum number of patients under 20 years ofage.

Table 2 – Distribution of cases of diseases by age categories

Age categories	Frequency	Percent	Valid Percent	Cumulative Percent
< 20	1	0,5	0,5	0,5
20-29	7	3,7	3,7	4,3
30-39	13	6,9	6,9	11,2
40-49	24	12,8	12,8	23,9
50-59	52	27,7	27,7	51,6
60-69	40	21,3	21,3	72,9
70-79	25	13,3	13,3	86,2
> 80	26	13,8	13,8	100,0
Total	188	100,0	100,0	

In addition, the individuals from this research work based on racial origin were categorized by 4 groups. (Table3)

As it can be clearly seen in Table number 3, those individuals who were attached in this issue were split up into 4 ethnic categories: 1.Kazakhs, 2.Russians, 3.Koreans and 4.others. The results of this issue depicted us that in through the number of people who were participating in our research work were 66,9% Kazakhs, 19,3% Russians, 1,7% Koreans, and for others 12,2%.

Table 3 – Nationality parameters of participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Kazakh	121	66,9	66,9	66,9
Russian	35	19,3	19,3	86,2
Korean	3	1,7	1,7	87,8
Others	22	12,2	12,2	100,0
Total	181	100,0	100,0	

The individuals, who were taken to our issue have been split up in seven groups by their parameters of social status in the Table 4.

As can be shown from Table 4, the majority of patients with 42,3% leads to the group of unemployed. Further, retired category of patients has been considered for a big amount with 29,7% of respondents. Contrastingly, in the disabled group, the smallest number of patients was received – 2 (1.8%).

Table 4 – Social status of patients under study

	Frequency	Percent	Valid Percent	Cumulative Percent
Employed	17	15,3	15,3	15,3
Unemployed	47	42,3	42,3	57,7
Housewife	11	9,9	9,9	67,6
Retired	33	29,7	29,7	97,3
Disabled	2	1,8	1,8	99,1
Other	1	,9	,9	100,0
Total	111	100,0	100,0	

High mortality rates of individuals were linked with the cause of late hospitalization, not appropriate doses of corticosteroids, very low amount of time for laboratory and instrumental assessments, insufficiency of medications in the hospital and additionally indecorous duration of treatment, which are shown in Figures 1-2.

As can be seen in (Figures – 1 and 2), 38.6 per cents of those patients who were died in pandemic time were hospitalized late in extra hard and serious condition. Patients with late hospitalization had a high mortality rate – 93%. Not correct dose of glucocorticosteroids, lack of laboratory and instrumental studies, not appropriate amount of medications in the hospital and not timely therapy initiation were difined as the remain causes of mortality (Figure 3,4).
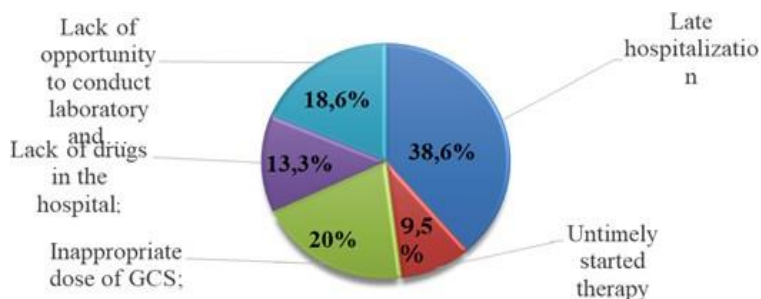

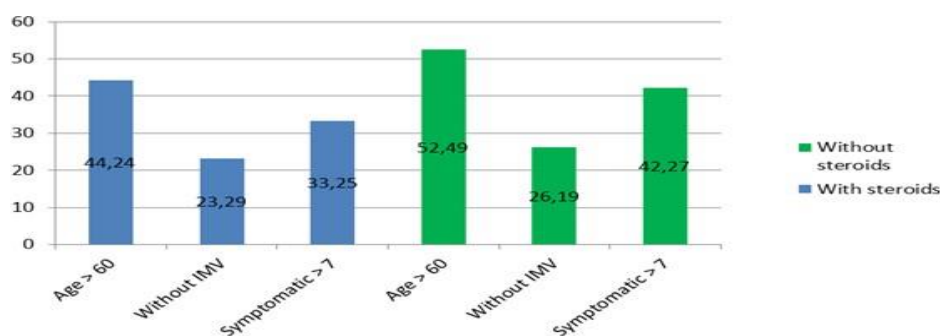**Figure 1 –** Causes of high mortality

Figure 2 – Mortality rate in different patient groups

The figure number 2 depicts us, that 20% of individuals didn't take an enough doses of drugs within corticosteroids which could have been make better conditions. By the recommendation of WHO [4], the usage of glucocorticosteroids can deteriorate the mortality rate in those one, who are standing in extremely hard condition adding with no ventilation indicating, except for patients with total contraindications of steroid therapy to 7-10 days.

The above figure shows that 20% of patients did not receive enough medications, including GCS, to improve their condition. According to the Who recommendation [4,12], the use of corticoste- roids leads to a decrease in mortality in patients with severe conditions and lack of indications for lung ventilation, with the exception of patients with absolute contraindications to 7-10 days of ste- roid therapy.
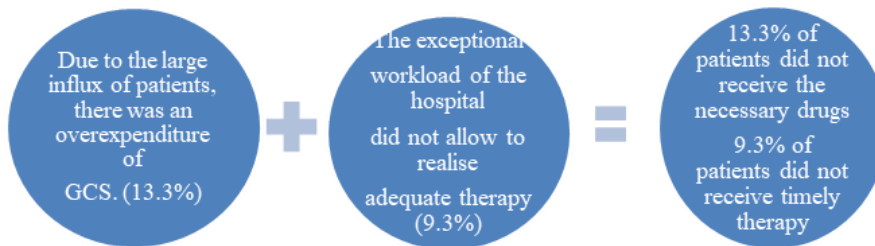

Figure 3 – Lack of drugs and initiation appropriate therapy

The patients were in critical and very serious condition. By this case, the intensive care unit was full and the medication was finished. Accordingly, approximately 13,3% of patients were unable to ap- point corticosteroids because of the high patient at- tendance and high need for corticosteroids.

Figure 4 – Lack of opportunity to conduct laboratory and instrumental research

Consequently all hospitals with their intensive care units were filled with seriously ill and extreme- ly serious ill individuals. Not enough resources for medical care providing to patients were observed.

The findings of our study has been presented, as it's shown in figure 5, the majority of mortality of individuals in case of Covid-19 were firstly from ARDS, secondly from multi-organ failure, pulmo- nary embolism, and from heart failure.

As it can be clearly seen in the figure 6, the ma- jority cases of the disease in the category of ages 50 to 69 with 27,7% and 40 21,3%, consequently. Thus, the very increased amount of individuals according to the ages is conducted for 50 to 69. In terms of the lowest amount of individuals the group under 20 years.

Additionally, according to the mortality causes,like: ARDS, heart failure, pulmonary embolism and multiple organ failure, survivors were divided by ages of groups.

In consonance with the distribution of causes of death by age group it was given the results such as most of people in the groups of ages "75 to 79" and "55 to 59" were the dominant one, where the cause of mortality was ARDS, 14.29% and 14,28%, respectively. What's for group of indi- viduals with HF, the most of patients' (33,33%) death went to the age's category of 55-59 years. Another died from multiple organ failure, with the highest percentage (16,67%) - aged 50 to 54 years.
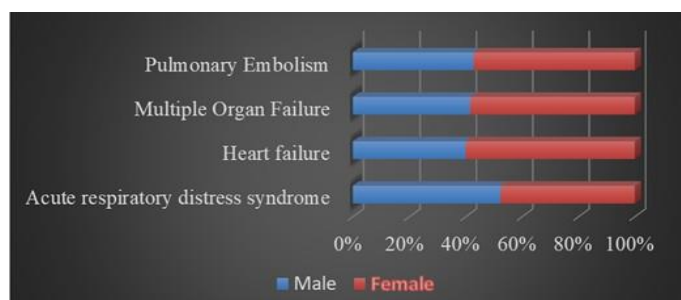
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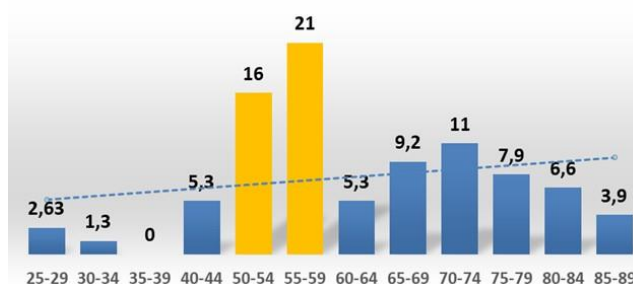**Figure 5 –** Causes of unsurvived among deceased according gender

Figure 6 – The mortality structure of causes in dead patients according to the age

Conclusion

Thus, indicators such as gender, age and nationality are the most important risk factors for mortality in people with Covid-19. Virtually all countries affected by the disease, including Kazakhstan, have developed mitigation and containment strategies based on social distancing.

In Kazakhstan, the pandemic fell in the summer, which is more likely due to the end of strictly quarantine, non-compliance with quarantine measures in public places and mass movement of people around the country [13,14,15]. As a result, hos- pitals were extremely overcrowded with patientsfrom moderate to serious condition. Patients were admitted in serious condition, daily mortality in- creased, the intensive care unit was overcrowded, and there was an acute shortage of instruments and drugs for patient care. This analysis showed that coronavirus infection requires strict compliance of people, the need to enlarge the amount of multi-disciplinary medical personnel, and improve the equipment of hospitals with all the necessary drugs and instruments.

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