Vashakidze E., Gegeshidze T., Megrelishvili T., Pachkoria E., Mikadze I.

THE CLINICAL-EPIDEMIOLOGICAL CHARACTERIZATION OF COVID-19 AND ASSOCIATED CONCOMITANT DISEASES IN GEORGIA

TSMU, DEPARTMENT OF INFECTIOUS DISEASES

Introduction:

In late 2019 the first cases of pneumonia of unknown etiology were identified in Wuhan, Hubei Province, People's Republic of China [1]. Chinese authorities identified a new type of severe acute respiratory syndrome coronavirus 2 (SARS-CoV 2), which rapidly spread across the globe, causing the coronavirus disease 2019 (COVID-19) pandemic [2].

On 11 March the World Health Organization (WHO) declared the COVID-19 a pandemic. From the moment of the first cases to 23 September 2020, more than 31 million people were confirmed with the virus, and more than 971,000 deaths have occurred due to the disease [3]. Faced with this rapid spread, researchers are studying the clinical characteristics, means of transmission, and severity in order to promote measures that contribute to disease prevention and better prognosis.

The first epidemiological studies have showed that the main symptoms of the disease are fever, dry cough, dyspnea, and headache, with progression to pneumonia [4]. With the spread of the disease around the world and the consequent increase in the number of patients, other symptoms began to be reported in scientific investigations.

Liang and colleagues recently validated a clinical risk tool (the COVID-GRAM) to predict the development of critical COVID-19 illness-defined as admission to the intensive care unit (ICU), requiring invasive mechanical ventilation, or death—after hospitalization admission in a nationwide cohort in China. Risk scores, applied to 10 variables that were independent predictors of critical illness, were used to classify patients as having a low (0.7% probability), medium (7.3%), or high risk (59.3%) of developing a critical illness [5].

Methods and objectives: This paper analyzes the epidemiological and clinical data, as well as concomitant diseases of 130 patients with laboratory-confirmed COVID-19 which were treated at the First University Clinic of Tbilisi State Medical University. Also, the aim of the study is to reveal patients who may develop critical illness by COVID-GRAM predictive risk score. Diagnosis in all patients were confirmed by detection of SARS COV-2 RNA in the nasopharynx / nasal smear by PCR method. This study aimed to systematize the findings regarding the clinical manifestations of patients with confirmed COVID-19. The material was analyzed using a statistical software package (SPSS V.24.0, IBM). Both univariate - frequency analysis and bivariate analysis were performed using Pearson ÷². Descriptive statistics of normal distribution data are presented by means of ± SD and their dispersion analysis, ANOVA - test.

Results: From 130 patients 82[63.1%]were hospitalized in the first three days from the onset of the disease. Epidemiological finding revealed that 109 [83.8%] had close / familial contact with the infected, 14 [10.7%] had a history of traveling to high-risk countries for 14 days, in 7- source [5.3%] could not be identified. The medical worker was 17 [13.1%]. Female - 76 (58. 4%), male - 54 (41.6%); The average age of patients is 48 years, the maximum is 86 years. Patients were divided into 3 clinical groups: I – COVID-19 without lung damage - 40 [30.7%], II - with lung damage -75 [57.7%], III - critical 15 [11.5%]. Died 7 [lethality 5.4%]. From the first clinical manifestation of the disease, we often encountered fever in 93.7% of cases. Severe weakness and fatigue revealed in 65%, dry cough - 62.8%, sore throat - 62%, anosmia - 23.9%, dysgeusia- 20.4%, chest tightness 15%, diarrhea 15%, headache 15%. Rarely, muscle pain 10.6%, profuse sweating 4.4%, dizziness 2.7%, chest pain 1.8%, dry throat 1.8%, dry mouth 0.9%. According concomitant diseases in group I, arterial hypertension was seen in most cases. For Group II Arterial hypertension, CVD and Diabetes type 2, also COPD was more characteristic compared to group I. For Group III (Critical) frequency of comorbidities (Arterial hypertension, CVD, Diabetes, Bronchial Asthma) were more typical than in Group I and II (see Table N1). Frequency of concomitant diseases was higher in patients with age 51-70 year (Table N2); According COVID-GRAM calculator High risk of developing severe illness was identified in 8 patients (6.15 %); Mild Risk was found in 15 patients (11.5%) and moderate risk in patients 107 (82.3%).

Table N1. Concomitant diseases - I, II, III Groups

Concomitant diseases	Group I	Group II	Group III	p
Arterial Hypertension	7.5%(3)	34.7%(26)	73.3%(11)	P<0.01
CVD	0	8%(6)	46.7%(7)	P<0.01
Diabetes	7.5%(3)	8%(6)	26.7%(4)	P=0.073
Oncologic Diseases	2.5%(1)	2.7%(2)	0	P=0.817
Bronchial Asthma	0	1.3%(1)	13.3%(2)	P=0.009
Epilepsy	0	1.3%(1)	0	
Tuberculosis	0	1.3%(1)	0	
Kidney Diseases	5.0%(2)	0	0	P=0.102
CNS Diseases	2.5%(1)	1.3%(1)	6.7%(1)	P=0.452
COPD	0	4.0%(3)	6.7%(1)	
Allergy	0	2.7%(2)	6.7%(1)	P=0.324

Table N2. Frequency of concomitant diseases

		Age					
		<19 year (11)	19-29 year (23)	30-50 year (41)	51-70 year (44)	71year <11	*p*
Frequency of concomitant diseases	N	2	5	11	29	9	0.000
	%	3.6	21.7	26.8	65.9	81.8	

Conclusion: In addition to the typical clinical sym-ptoms of COVID-19 (fever, asthenia, dry cough, sore throat), severe asthenia, abdominal pain, diarrhea, change in taste and smell, headache, dizziness were encountered. It is worth to mention that initially, according to the clinical symptoms of viral replication stage, there was no significant difference between groups. From comorbid diseases: Hypertension, CVD, Diabetes were reliably common in every group, but in critically ill patients was the highest rate of como-rbidities Arterial hypertension, CVD, Diabetes. Criti-cal condition of patients were associated with the age >50 (95%CI, 1.21-16.87; P=0.0250), T 38-39ºÑ [OR], 10.1; 95% CI.2.79-36.5; P=0.0004] and shortness of breath ([OR], 4.42; 95% CI, 1.76-11.09; P=0.002]; The frequency of comorbidities was increased along with the age. According to COVID-GRAM calculator to predict developing critical illness was easy in patients with mild and high risk. Most of the patients were found in Gray zone where the risk of developing critical illness is moderate. Thus, there should be done further studies for identification new prediction markers of critical illness.

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SUMMARY

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This paper analyzes the epidemiological and clinical data, as well as concomitant diseases of 130 patients with laboratory-confirmed COVID 19. The aim of the study is also reveal patients who may develop critical illness by COVID-GRAM predictive risk score.

From 130 patients 82[63.1%] were hospitalized in the first three days from the onset of the disease. The average age of patients is 48 years,the maximum is 86 years. Patients were divided into 3 clinical groups: I - COVID 19 without lung damage - 40 [30.7%], II - with lung damage - 75 [57.7%], III - critical 15 [11.5%]. Died 7 [lethality 5.4%]. In critically ill patients was the highest rate of comorbidities of Arterial hypertension, CVD, Diabetes.

It is worth to mention that initially, according clinical symptoms in the stage of viral replication stage there was no significant difference between groups. The frequency of comorbidities was increased along with the age. According to COVID-GRAM calculator, prediction of development of critical illness was easy in patients with mild and high risk. Most of the patients were found in Gray zone where the risk of developing critical illness is moderate. Thus, there should be done further studies for identification new prediction markers of critical illness.