

Complications with Pneumoniae in COVID-19 Patients at the First University Clinic of Tbilisi State Medical University, Georgia

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Abstract – COVID -19 virus can infect the lower respiratory tract and cause pneumonia in humans. This is associated with different health difficulties, prolonged hospitalization, high mortality rate and economical-financial problems as well.

160 patients were admitted to First University Clinic of Tbilisi State Medical University, Georgia (March-June 2020). We conducted retrospective study to reveal the frequency of pneumonia among COVID -19 patients, specifically according to gender and age. Study results show that pneumonia was common in most COVID -19 cases (74.3%), that was more prevalent in females - 58%. Especially, high rate of this complication was reported in the age group of patients between 30-59 years (47.8%) rather than in other age groups. 92.4% of pneumonia patients were recovered, lethal outcome was developed in 7.6% of cases.

Keywords – COVID-19 infection, pneumonia, gender of patients, age of patients, COVID-19 complication.

I. INTRODUCTION

An outbreak of “mystery pneumonia” caused by new coronavirus in Wuhan, China has become an emergency of major international concern [2, 4].

The World Health Organization declared a pandemic of COVID-19 on 11 March, 2020 [7].

COVID-19 is similar to the severe acute respiratory syndrome coronavirus virus (SARS-CoV) in terms of its epidemiology, pathogenicity and clinical results. Therefore, this virus has higher genome sequence identity with SARS-CoV compared to Middle East Respiratory Syndrome coronavirus (MERS-CoV) [5]. Also, the nucleocapsid protein of COVID-19 has nearly 90% amino acid sequence identity with SARS-CoV [5].

These and other important biological characteristics provide that COVID-19 infection causes clusters of severe respiratory illness similar to SARS-CoV [4].

Clinical signs of COVID-19 vary with mild upper respiratory tract infection, lower respiratory tract infection involving non-life-threatening pneumonia, and life-threatening pneumonia with acute respiratory distress syndrome. Also, other different symptoms are typical such as fever and dry cough; more rarely - shortness of breathing, muscular pain, headache/dizziness, diarrhea, nausea/vomiting [3].

Analysis of clinical data indicates that COVID-19 affects all age groups. Virus may change symmetrical and local immune responses, potential risks from the cytokine-storm. There is the suggestion that pregnant women with COVID-

COVID-19 may encounter increased morbidity and even mortality and can cause preterm deliveries with fetal respiratory distress syndrome. Inflammatory response due to COVID-19 may affect postnatal life in children as well [8].

During the onset of clinical symptoms (mainly - 5–6th days), viral load reaches its peak. Disease progresses to acute respiratory distress syndrome (ARDS), averagely around 8–9 days after symptoms onset. Retrospective data suggest that an increased level of heart fatty acid, as a serum biomarker, is closely linked to the severity of infection and the rapid progression of the disease [8].

According to daily reports new cases are still emerging in different countries. The attempts to defeat the virus are hindered and restricted by a lack of knowledge of basic aspects of SARS-CoV-2 infection, starting from pathogen biology to immunological response and including treatment options.

Nowadays, as it is known, frequency of cases and deaths reported by countries are different. The list of countries and territories and their continental regional classification is based on the United Nations Geo scheme. It was initially announced as public health collapse of international care by WHO ensured by Pandemic on 12th March 2020 [5].

Nowadays there are 1206 confirmed cases in Georgia (06.08.2020). Among them recovered 987 patients, while fatal outcome is 17 [1].

The aim of the paper was to analyze frequency of pneumoniae in COVID-19 patients according to the gender and age, as well as outcome of COVID-19 pneumonia patients in the First University Clinic of Tbilisi State Medical University (TSMU), Georgia.

II. MATERIALS AND METHODS

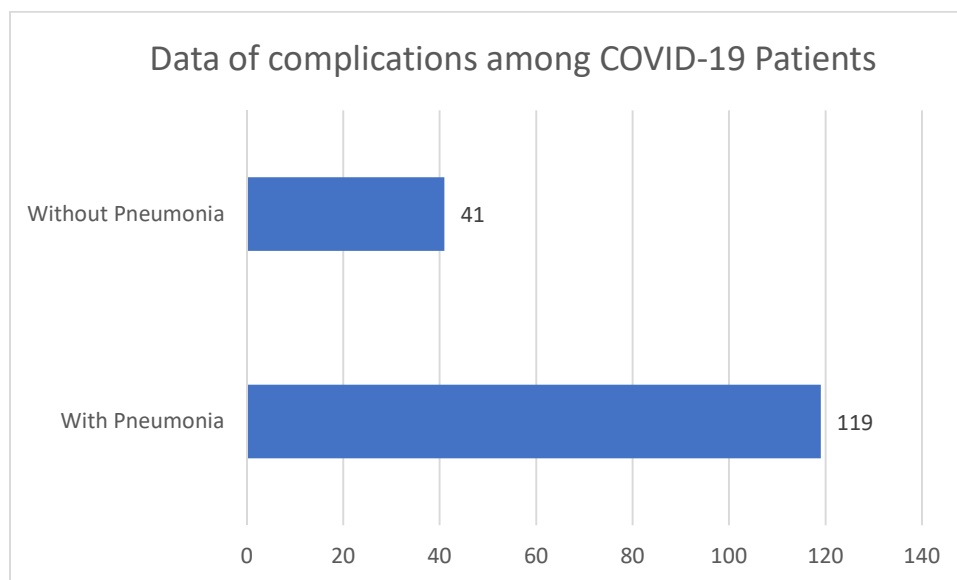
Totally 160 patients were admitted to the First University Clinic of Tbilisi State Medical University, Georgia during March-June 2020. Diagnosis of patients were performed by widely used specific clinical and laboratory methods. We conducted retrospective study of cases complicated with pneumonia according to gender and age of patients (descriptive study).

The study results were processed statistically with the use of statistical program - IBM SPSS Statistics for Windows, Version 19.0. The data is statistically significant, for all tables and diagrams $p < 0.05$.

III. RESULTS:

Data revealed that pneumonia was developed in most cases - 119 (74.3%) from 160 COVID-19 positive patients. 41 patients (25.7%) were not diagnosed with pneumonia (Diagram #1).

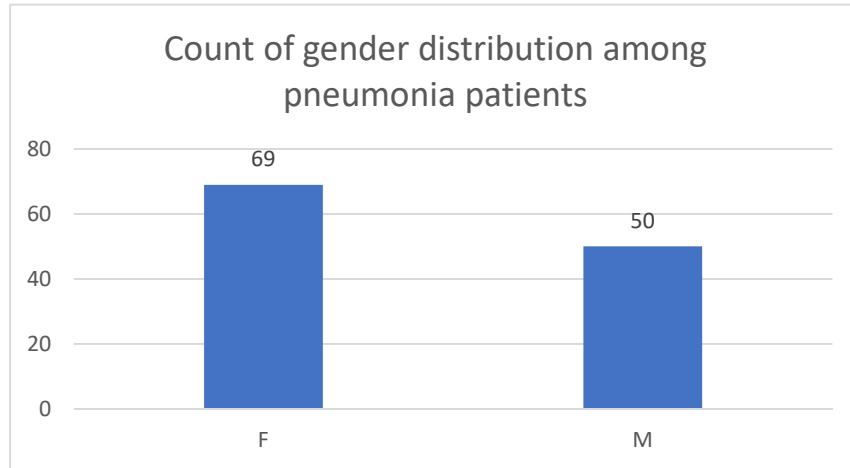
Diagram #1. Data of COVID-19 patients with and without complication (pneumonia).



In terms of gender analyses, study showed that majority from 119 pneumonia patients were female 69 (58%), whereas

there were 50 (42%) male patients with diagnosed pneumonia (Diagram #2).

Diagram #2. Gender Distribution among COVID -19 pneumonia patients



We also conducted age distribution survey among COVID -19 pneumonia patients, where we used following classification for different age groups:

5-14	A
15-19	B
20-29	C
30-59	D
60 >	E

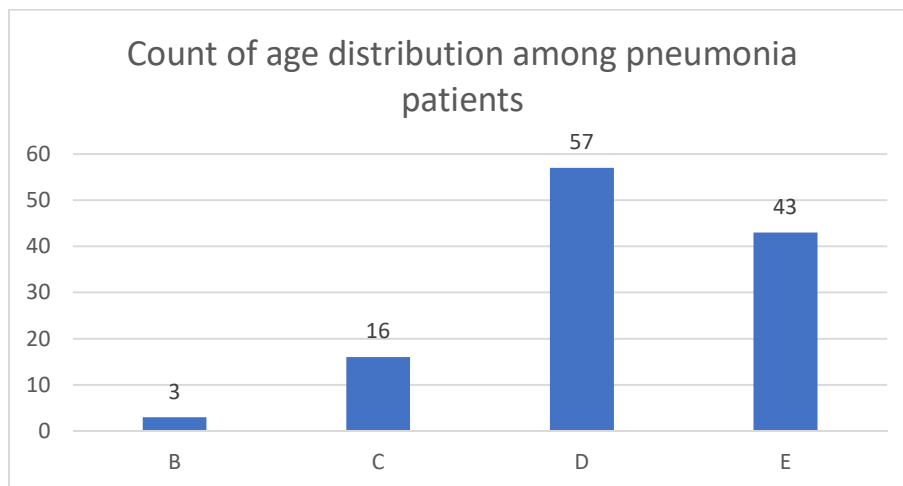
It appeared that most cases of pneumonia were developed in D group (30-59 y.) – 47.8% (57 patients) which comprised

nearly half of all cases. In E group (>60y.) – 36% (43 patients), in C group (20-29y.) -13.4 % (16 patients) and in B group only 2.5% (3 patients) of pneumonia cases were observed (Table #1; Diagram #3).

Table #1. Age Distribution among Pneumonia Patients.

age group	Count of age distribution
B	3
C	16
D	57
E	43

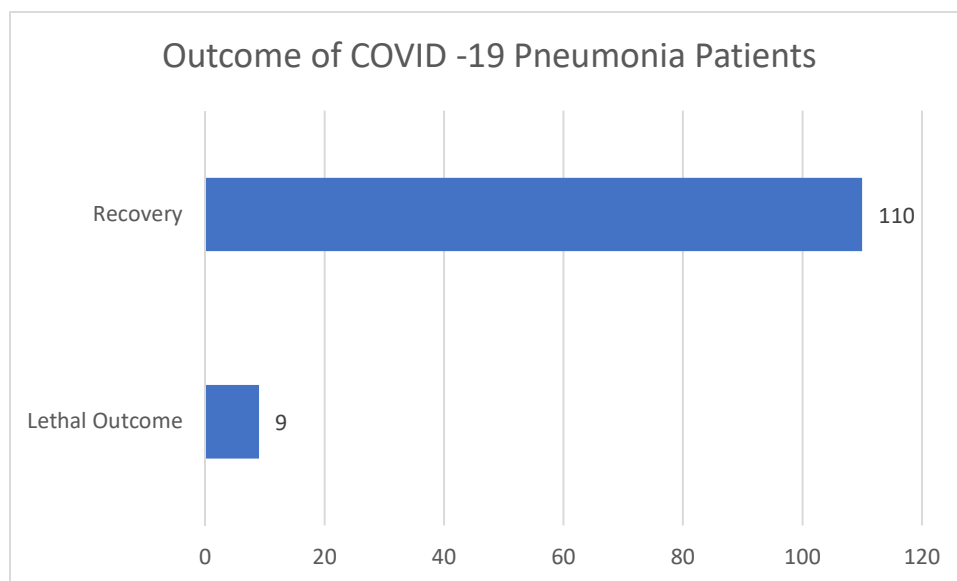
Diagram #3. Age Distribution among pneumonia Patients.



In 9 from total 119 pneumonia patients lethal outcome was developed, that comprised 7.56% of the cases. As for

convalescence rate, 110 patients (92.4%) were recovered (Diagram #4).

Diagram #4. Outcome of COVID -19 Pneumonia Patients.



IV. CONCLUSIONS:

Study results revealed that in COVID-19 patients pneumonia was developed in most cases (74.3%). Frequency of pneumonia was higher in females - 58% of cases. This complication was developed mainly in the age group between 30-59 years – 47.8% of total pneumonia cases and in patients above 60 years - 36% of cases. Rate of recovery from pneumonia was 92.4%, lethal outcome was developed in 7.6% of patients respectively.

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