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LEFT BUNDLE BRANCH BLOCK IN PATIENTS WITH NOVEL CORONAVIRUS INFECTION, DO YOU THINK IT IS A CAUSE OF DEATH?

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ABSTRACT

Introduction: A global pandemic of Coronavirus (COVID-19) disease was developed in 2019, primarily affecting respiratory tract and causing asymptomatic subclinical infections up to severe acute respiratory distress syndrome that need hospital admittance to coronary care units (CCUs) and intensive care unit (ICU) where nursing care is required. Acute myocardial injury and arrhythmia may also occur, potentially contributing to inclusive illness and death in COVID-19 patients. Left bundle branch block (LBBB) is tropical illness that may happen in COVID-19 patients. **Aim of the work:** To investigate the effect of LBBB on quick-term death probability in patients with COVID-19. **Materials and Methods:** Retrospective study on the incidence of LBBB in patients with COVID-19 in to bruk city. Study included both male and female samples, including all patients with LBBB (aged 37-82 years) those managed in CCU and ICU. Patients' records were collected from to bruk Medical Center inpatients - 42 total cases from January 1, 2020 to December 31, 2021. All necessary basic information and data were obtained from medical records. Excel was used for data assortment and expressive study. **Results:** Our scientific work included 42 patients. Of these, 31 (74%) were male and 11 (26%) were female. Male gender is predominant on female gender as ratio 2.8:1. Patients' ages included at this work oscillated between 37 and 82 years (mean age; 59.5 years). The highest age group observed to have great pervasiveness of LBBB in COVID-19 patients was 50-59 years (38.1%). **Conclusion:** Left bundle branch block is taken into consideration to be the primary symptom in sufferers with COVID-19 infection. In addition, studies are wanted to explain the real mechanism and suitable treatment.

KEYWORDS

Left Bundle Branch Block and Coronavirus Infection.

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INTRODUCTION

A global pandemic of Coronavirus (COVID-19) disease was developed in 2019. Primary corona virus patient was found in China that extended worldwide with further 168 million people infected as of May 28, 2021 and the number of infections worldwide.

The number of participants was 350. Millions of people died¹.

This virus chiefly infects respiratory system that may be unnoticed symptoms up to severe acute respiratory distress syndrome requiring ventilators and ICU. Respiratory failure is considered the maximum not unusual place purpose of death, but acute myocardial INFARCTION and myocarditis²⁻⁴, cardiac fibrosis⁵, arrhythmia⁶, vascular diseases⁷, autonomic dysfunction⁸, Thrombosis⁹ could be a cause of death. Also occur and contributing to inclusive illness and death in COVID-19 patients.

LBBB is tropical disease that become increasingly as a significant diagnostic means in patients' assortment for cardiac resynchronization therapy (CRT). In LBBB, right ventricle is stimulate dearlier than left ventricle, leading to variations at left ventricle mechanism, and work output. This abnormal stimulation can initiate heart alteration with decreased cardiac activity, which can be detrimental to the patients whom had altered cardiac structures¹⁰.

The incidence of LBBB is generally decreased in worldwide peoples, but prevalence is significantly increased in chronic heart failure patients¹¹. Current analyzes has shown a high incidence of acute heart failure. COVID-19 patients who had chronic heart failure are further likely to progress acute decompensation. Furthermore, acute cardiac injury frequently occurs in these patients, significantly increasing the risk of death if infected. However, the predictive part of LBBB infected patients still not investigated¹².

We investigate the effect of LBBB on quick-term death probability in patients with COVID-19.

PATIENTS AND METHODS

Our scientific research was a retrospective study on the incidence of (LBBB) at patients that infected by COVID-19 in to bruk city. Study included both male and female samples, including all patients with LBBB (aged 37-82 years) managed in the CCU and ICU. Medical records were collected. To bruk Medical Center inpatients - 42 total cases from January 1, 2020 to December 31, 2021. All necessary basic information and data were collected

from medical files. Excel was used for records gathering and expressive investigation.

RESULTS AND DISCUSSION

This scientific research was accompanied by 42 patients. As shown in (Figure No.1), 31(74%) of these were male and 11(26%) were female. Male gender is predominant on female gender as ratio 2.8:1.

Patients' ages included is ranged from 37 to 82 years, with a mean of 59.5 years. The prevalence between age groups is presented in Table No.1. Group of age with highest frequency of LBBB observed with COVID-19 patients was shown to be 50-59 years old (38.1%), followed by 60-69 years old (23.8%), then 40-49(19%). The least number (2.4%) of LBBB with COVID-19 patients occurred in younger age group (30 to 39 years).

Discussion

Arrhythmias could be happened in COVID-19 patients. Palpitations were described as concomitant manifestation in 7 patients from 137 patients diseased by SARS-CoV-2 and admitted to hospitals in Hubei, China¹³.

Our study is directed among 42 patients. Whereas 31 males (74%) and 11 females (26%). Male gender is predominant on female gender as ratio 2.8:1. Patients' ages included in this research are between 37 to 82 years, with a mean of 59.5 years. The highest age group observed to have a high frequency of LBBB at patients with COVID-19 was 50-59 years (38.1%).

Another report from China found that the incidence of cardiac arrhythmia was even higher, at 16.7% of 138 confirmed cases of coronavirus disease (COVID-19)⁶. Arrhythmic sinus tachycardia is common at patients with COVID-19. That isn't obvious that the cause of sinus tachycardia is due to high cardiac output in relation to hyperthermia, decrease oxygen supply, strain of inflammation, drugs, or due to variations in cardiac muscle organization¹⁴.

In 2020, Bhatla *et al.* study shows 700 COVID-19 inpatients with twenty five cases of atrial fibrillation (AF), nine cases of brady arrhythmia and ten cases of non-sustained ventricular tachycardia (NSVT).

Additionally, ICU patients were concomitant with the development of atrial fibrillation and NSVT¹⁵. Correspondingly, atrial arrhythmias were noted on ECG (27.5% of ICU patients), but not in outpatients¹⁶.

Arrhythmias of ventricle can happen with severe viral infected patients¹⁷. These patients are susceptible to cardiogenic shock and require extracorporeal membrane oxygenation¹⁸.

The main mechanisms of arrhythmia are adverse effects of the drugs, myocarditis, oedema, fibrous tissue formation that result in fundamental variations, conduction irregularities, and abnormalities of ion channels (Na⁺ and K⁺)¹⁹.

The mechanism of COVID-19 cardiac symptoms is not fully recognized. Because of the deficiency of sufficient histological evidence for a thorough evaluation of cardiac pathology, especially in cases of myocarditis where one of the main measures for diagnosis is microscopic tissue examination.

There is little evidence of cardiac symptoms. Additionally, the drugs that are used in treatment of patients with COVID-19 may result in cardiovascular side effects. Existence of cardiac manifestations can impact the COVID-19 severity, and mortality may be increased with primary cardiac disease. Therefore, knowing the mechanisms of cardiac diseases related to COVID-19 infection can help in successful management and treatment²⁰.

Most patients were treated with a mild clinical course and subsequently resolved upon discharge. There were no fatalities.

Table No.1: Incidence of LBBB by age and gender at patients with COVID-19

S.No	Group of age by years	Male	Female	Total Number and %
1	30-39	1	-	1(2.4%)
2	40-49	6	2	8(19%)
3	50-59	11	5	16(38.1%)
4	60-69	7	3	10(23.8%)
5	70-79	4	1	5(11.9%)
6	80-89	2	-	2(4.8%)
7	Total	31	11	42(100%)

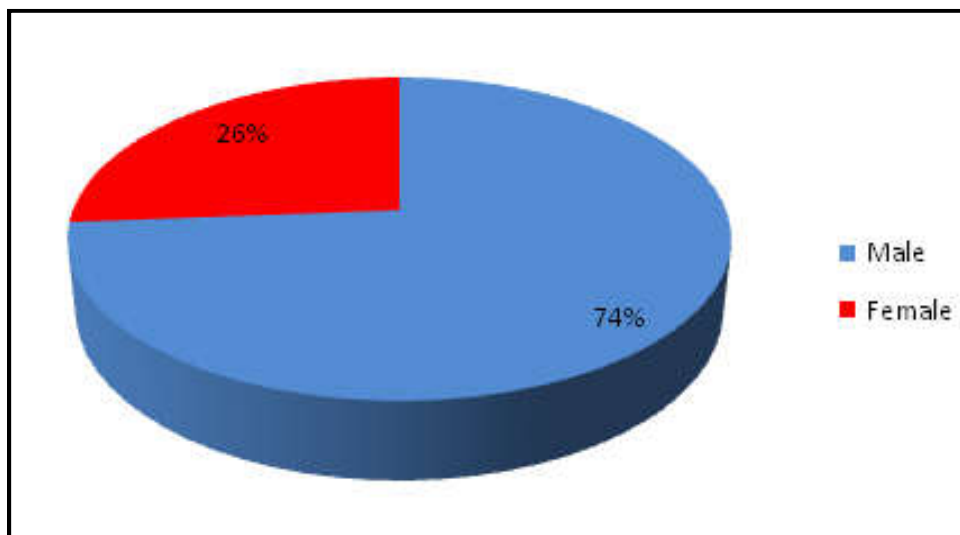


Figure No.1: Overall incidence of LBBB in male and female COVID-19 patients

CONCLUSION

In conclusion, Left bundle branch block is taken into consideration to be the primary symptom in sufferers with COVID-19 infection. In addition, studies are wanted to explain the real mechanism and suitable treatment.

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CONFLICT OF INTEREST

We declare that we have no conflict of Interest.

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