MISJ-International Journal of Medical Research and Allied Sciences
Online ISSN: 2584-1432
Available Online at http://ijmraas.misj.net Volume 02|Issue 01 (January to April)|2024 Page: 08-12

Original Research Paper

Left Bundle Branch Block in Patients with Novel Coronavirus Infection, Do you Think it is a Cause of Death?

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Article Received: 15-November-2023 Revised: 05-December-2023 Accepted: 25-December-2023

ABSTRACT:

Introduction: Coronavirus disease 2019 (COVID-19) has caused a global pandemic that emerged in 2019, primarily affecting the respiratory tract and causing asymptomatic subclinical infections to coronary care units (CCUs). These range from severe acute respiratory distress syndrome (ARDS) requiring hospitalization.) or to an intensive care unit (intensive care unit) where Nursing care is Required. Acute myocardial injury and arrhythmia may also occur, potentially contributing to overall morbidity and mortality in patients with COVID-19 infection. Left bundle branch block (LBBB) is a tropical disease that can occur in patients with the novel coronavirus disease (COVID-19). **Aim of the Study**: To investigate the effect of left bundle branch block (LBBB) on short-term mortality risk in patients with COVID-19 infection. **Materials and Methods**: This was a retrospective study on the prevalence of left bundle branch block (LBBB) in patients with COVID-19 infection in Tobruk city. The study included both male and female samples, including all left bundle branch block (LBBB) patients (aged 37-82 years) treated in the coronary care unit (CCU) and intensive care unit (ICU).) medical records were collected. Tobruk Medical Center inpatients – 42 total cases from January 1, 2020 to December 31, 2021. All necessary basic information and data were obtained from medical documentation. Excel was used for data collection and descriptive analysis. **Results**: Our study included 42 patients. Of these, 31 (74%) were male and 11 (26%) were female. The male to female ratio in this study was 2.8:1. The ages of patients included in this study ranged from 37 to 82 years, with a mean of 59.5 years. The highest age group observed to have a high prevalence of left bundle branch block (LBBB) in patients with COVID-19 was 50-59 years (38.1%). **Conclusion**: Left bundle branch block is considered to be the first symptom in patients with COVID-19 infection, and further research is needed to elucidate the actual mechanism and appropriate treatment.

Keywords: Left Bundle Branch Block; Coronavirus Infection.

INTRODUCTION:

Coronavirus disease 2019 (COVID-19) caused a global pandemic in 2019. This is the result of infection with the new enveloped RNA beta coronavirus SARS coronavirus 2 (SARS-CoV-2). The first case of the disease was confirmed in Wuhan, China in late 2019, and the disease quickly spread around the world, with more than 168 million people infected as of May 28, 2021, and the number of infections worldwide. The number of participants was 350. Millions of people died [1]. SARS-CoV-2 primarily infects the respiratory tract and can range from asymptomatic subclinical infections to severe acute respiratory distress syndrome (ARDS) requiring ventilation and intensive care unit (ICU). Shows clinical symptoms. Respiratory failure is the most common cause of death, but acute myocardial injury and myocarditis [2-4], cardiac fibrosis [5], arrhythmia [6], endothelial dysfunction [7], autonomic dysfunction [8], Thrombosis [9] may also be a cause of death. also occur and contribute to the overall morbidity and mortality of patients with COVID-19 infection.

Left bundle branch block (LBBB) is a tropical disease that has become increasingly important as an important

diagnostic tool in patient selection for cardiac resynchronization therapy (CRT). In LBBB, the right ventricle (RV) is activated before the left ventricle (LV), resulting in changes in LV mechanics, perfusion, and work output. Over time, this aberrant activation can lead to cardiac remodeling with decreased cardiac function, which can be detrimental to patients with structurally abnormal hearts [10].

The prevalence of left bundle branch block (LBBB) is generally low in the general population, but the prevalence is significantly increased in patients with chronic heart failure (HF) [11]. Recent analyzes have shown a high incidence of acute heart failure. COVID-19 patients with a history of chronic heart failure are more likely to develop acute decompensation. Furthermore, acute cardiac injury frequently occurs in these patients, significantly increasing the risk of death if infected. However, the prognostic role of LBBB in SARS-CoV-2 infected patients has not yet been investigated [12]. We are investigating the effect of left bundle branch block (LBB) on short-term mortality risk in patients with COVID-19 infection.

Patients and Methods:

Our study was a retrospective study on the prevalence of left bundle branch block (LBB) in patients with COVID-19 infection in Tobruk city. The study included both male and female samples, including all left bundle branch block (LBBB) patients (aged 37-82 years) treated in the coronary care unit (CCU) and intensive care unit (ICU). Medical records were collected. Tobruk Medical Center inpatients – 42 total cases from January 1, 2020 to December 31, 2021. All necessary basic information and data were obtained from medical files. Excel was used for data gathering and expressive investigation.

RESULTS:

This study was conducted on 42 patients. As shown in (Figure 1), 31 (74%) of these were male and 11 (26%) were female. The male to female ratio in this study was 2.8:1.

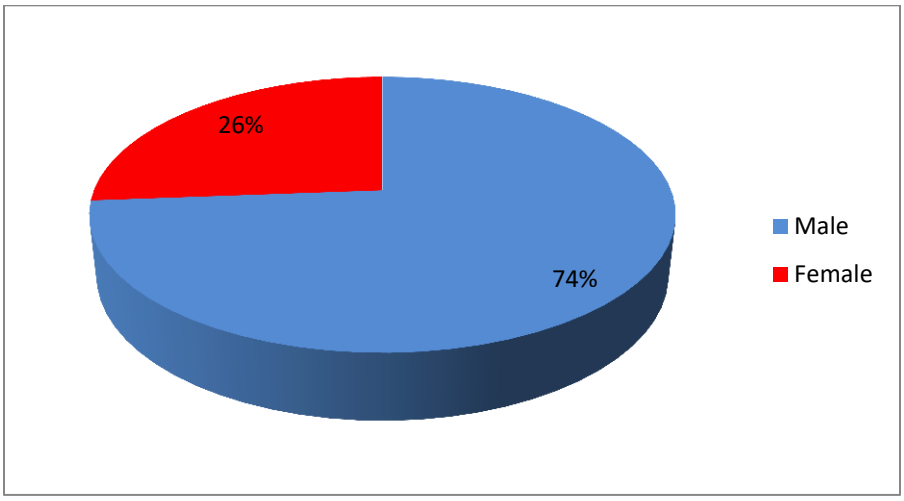

Figure (1): Overall prevalence of left bundle branch block (LBBB) in male and female COVID-19 patients

The ages of patients included in this study ranged from 37 to 82 years, with a mean of 59.5 years. The prevalence between age groups is shown in Table 1. The age group with the highest prevalence of left bundle branch block (LBBB) observed in patients with COVID-19 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 left bundle branch block (LBBB) in patients with COVID-19 occurred in the younger age group of 30 to 39 years.

Group of Age by years	Male	Female	Total Number and %
30-39	1	-	1 (2.4%)
40-49	6	2	8 (19%)
50-59	**11**	**5**	**16 (38.1%)**
60-69	7	3	10 (23.8%)

70-79	4	1	5 (11.9%)
80-89	2	-	2 (4.8%)
Total	31	11	42 (100%)

Table (1): Prevalence of left bundle branch block (LBBB) by age and gender in patients with COVID-19 infection

DISCUSSION:

Arrhythmias can also occur in patients with COVID-19. Palpitations were reported as a concomitant symptom in 7% of 137 SARS-CoV-2-infected patients hospitalized in Hubei, China [13]. In our study, we conducted among 42 patients. Out of them, 31 (74%) were males and 11 (26%) were females. Male to female ratio in this study was 2.8:1. The ages of patients included in this study ranged from 37 to 82 years, with a mean of 59.5 years. The highest age group observed to have a high prevalence of left bundle branch block (LBB) in 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]. The most common arrhythmia in patients with COVID-19 is sinus tachycardia. It is unclear whether sinus tachycardia is due to increased cardiac output due to fever, hypoxia, inflammatory stress, drugs, or due to structural changes in the myocardium [14]. A study of 700 hospitalized patients with COVID-19 found 25 cases of atrial fibrillation (AF), 9 cases of bradyarrhythmia, and 10 cases of non-sustained ventricular tachycardia (NSVT) . Additionally, ICU admission was associated with the development of atrial fibrillation and NSVT [15]. Similarly, atrial arrhythmias were recorded on his ECG in his 27.5% of patients admitted to the ICU, but not in patients not admitted to the ICU [16]. Ventricular arrhythmias also occur in patients with severe COVID-19 infection [17], and these patients are susceptible to cardiogenic shock and require extracorporeal membrane oxygenation [18]. Drug side effects, myocardial inflammation, interstitial tissue edema, fibrosis, and myocarditis cause structural changes, conduction abnormalities, and dysregulation of ion channels (Na+ and K+) and are one of the fundamental mechanisms by which arrhythmia occurs. [19]. The pathophysiology of cardiac symptoms in COVID-19 is not yet fully understood. Due to the lack of sufficient histological evidence for a thorough evaluation of cardiac pathology, especially in cases of myocarditis where histological examination is part of the diagnostic criteria, SARS-CoV-2 There is little evidence of cardiac symptoms. Limited understanding. Additionally, drugs currently used to treat COVID-19 may also have cardiovascular effects. The occurrence of cardiovascular symptoms may also influence the severity of COVID-19 infection, and underlying cardiovascular disease may increase mortality. Therefore, understanding the mechanisms of COVID-19-mediated cardiovascular disease may lead to improved treatment and management of these patients. This review summarizes current research on the pathophysiology of cardiovascular damage and symptoms associated with COVID-19 [20].

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

CONCLUSION:

In conclusion, left bundle branch block is considered to be the first symptom in patients with COVID-19 infection, and further research is needed to elucidate the actual mechanism and appropriate treatment.

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