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CARDIOVASCULAR COMPLICATIONS OF COVID 19 VIRUS INFECTION

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ABSTRACT

Sever acute respiratory syndrome corona virus2 (SARS-COV-2) has led to possibly the worst pandemic in this century in the form of COVID 19. it is not only a respiratory system disease, it has found to affect and damage the cardiovascular system (CVS) through the angiotensin-converting enzyme 2 receptor. In our cross-sectional study about 148 participants shared, their age ranges from 22 – 67 years old, of them (14.3%) showed to have a severe infection with one month or more duration of illness. Most of the recorded complaints by the participants were chest pain, palpitation, fatigability and the diagnosis of first attack of hypertention during the duration of illness. The percentage of the recorded complaints was seen to be doubled or more in patients who recorded a severe infection with one month or more duration of illness. Health care workers should pay attention to the cardiovascular complications in COVID 19 infected patients during illness period and long term follow up is also necessary in the post recovery period.

KEYWORDS: Covid 19, cross-sectional study, cardiovascular complications, chest pain, palpitation

INTRODUCTION

Corona virus disease (COVID_19), is a viral contagious infectious disease caused by the virus called SARS_COV_2, which cause a big health emergency with large number of positive cases all over the world.[1] It present with a wide range of symptoms and signs starting from fever, fatigue, loss of smell and diarrhea to sever respiratory and cardiovascular complications even may ending with death.[2]

Many reports from different parts of the world have shown that COVID_19 has a wide range of long term effect on all body systems, including respiratory, cardiovascular, neurological, gastrointestinal, dermatological and psychiatric.[3]

Several mechanisms are played role in the genesis of cardiovascular complications in corona virus patients like direct myocardial cells injury (ACE2 receptors) ,catecholamine surge, systemic inflammation, electrolyte imbalance ,cytokine storm and hypoxia.[4] Corona virus disease 2019 (COVID_19) is one of the major pandemics affecting the world since the end of 2019.[3] The reports of WHO indicate that nearly (223) countries affected by the virus with (110,384,747) confirmed cases and (2,446,008) confirmed deaths reported at 21 February 2021.[1]

SUBJECTS AND METHODS

The present study represents a cross sectional study, conducted during the period from the 1st of April 2022 to the 1st of July 2022.

A total of 148 subjects shared in the research, they include our colleges, relatives, patients and visitors to our hospital (Ibn Sina Teaching Hospital) where we work,

The data collected through a formula of questionnaire prepared previously including the following questions:

Demographic data
Have you infected with Covid-19 Virus?

How did you diagnosed?

The duration of infection (one month or less)

The severity of infection (the patient admitted to hospital or not)

Did you visit your family physician and did investigations related to the cardiovascular system?

Did you had an attack of elevated blood pressure during or after the period of infection?

Did you had an attack of chest pain during the period of infection?

After recovery, did you started to feel fatigued of doing your simple daily tasks?

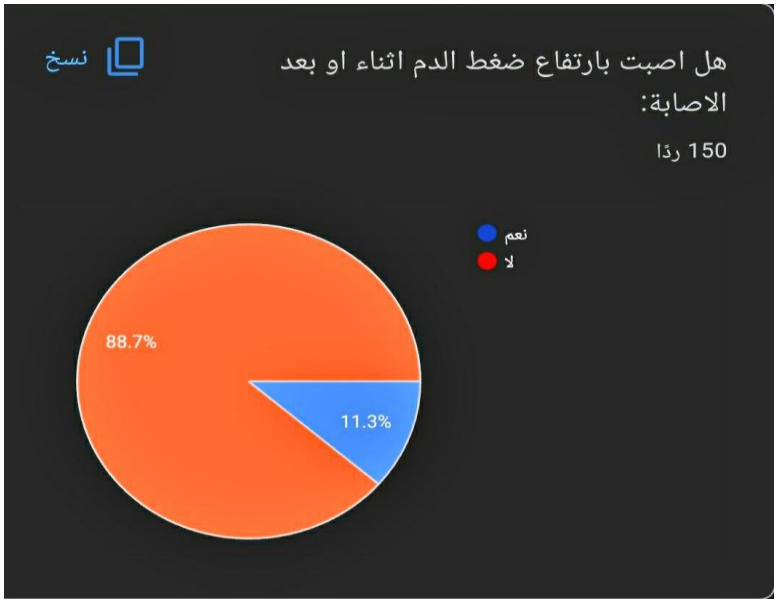
Did you had an attack of palpitation during the period of infection?

Did you had an attack of loss of consciousness after recovery?

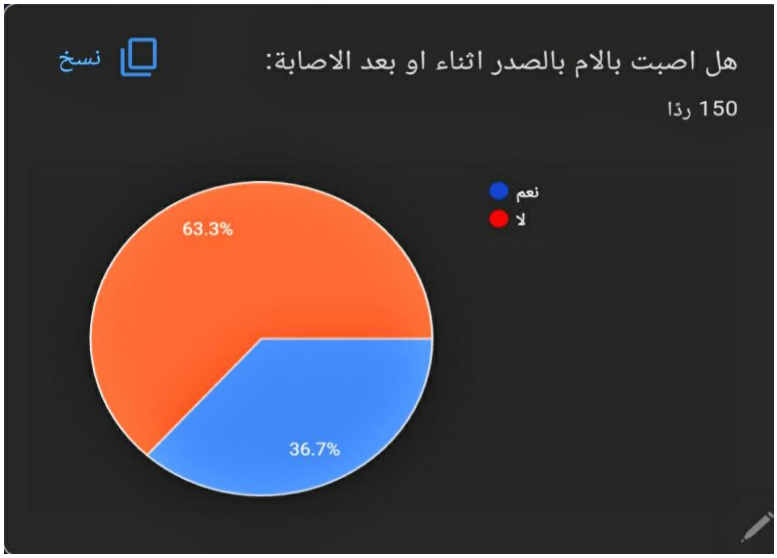
RESULTS

In this study, the number of shared subjects was 148, their age ranged from 22 – 67 years old. Regarding the duration of illness, about (14.3%) of the participants had a month or more duration, in comparison to (85.7%) with less than one month duration of illness, and about (5.4%) of the participants reported the need of admission to the hospital and to the CCU or RCU.

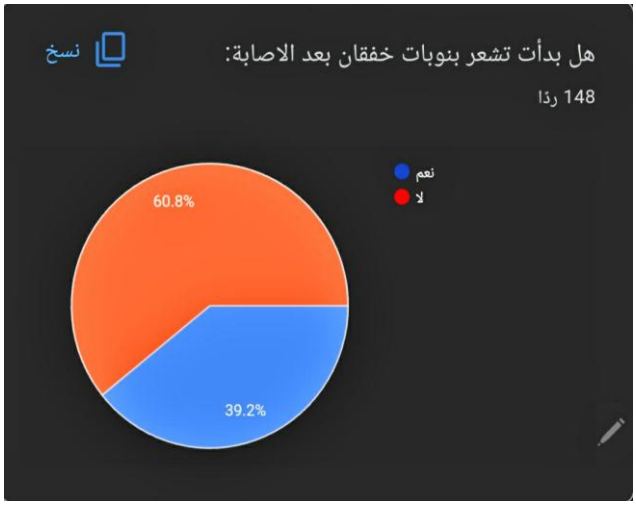
Those who visit their family physician and did investigations related to the cardiovascular system included (24%) of the participants, while (11.6%) of the participants developed hypertention during or after the period of infection.

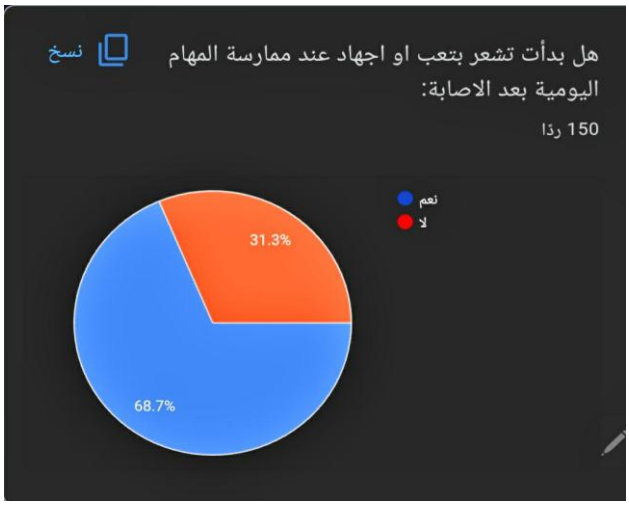


Of the participants, those who suffered from attack of chest pain during the period of infection were (36.7%),



similarly, attacks of palpitation occurred in (39.3%) of the participants during the period of infection, while (68.7%) of the participants started to feel fatigued during doing their daily tasks after recovery.





Regarding attacks of loss of consciousness, it occurred at (3.4%) of the participants after recovery.

Those participants of sever covid-19 infection; with a duration of illness around a month or more; about (60%) of them did ECG, Echo study and other investigations for the cardiovascular system during illness duration, thirty percent (30%) of them reported to develop a hypertension during or after the period of illness, while (85%) of them reported attacks of palpitation during illness, lastly, seventy five percent (75%) of them mentioned to have an attack of chest pain during period of illness.

DISCUSSION

COVID-19 is a disease affecting multiple systems in the body with a long- term effect on the systems. For this reason evaluation of the post COVID-19 cardiovascular complications should be done to treat and prevent the long term persistant symptoms and decrease the harmful effect.In our cross sectional study, we assessed the prevalence and characteristics of the post COVID-19 syndrome in 148 subjects (14.3%) of them had a month or more duration after acute infection and (85%) with less than one month duration after acute illness. we found that good ratio of them complain from cardiovascular symptoms during and after the illness.

Some studies have been done in early period of infection reported that many persistant cardiovascular symptoms remain after illness for example a study reported nearly 7.2% - 27.8% of positive patients with acute cardiac injury (5), 8.7% with shock, 16.7% with arrythemias providing evidence of the presence of CV complication in COVID-19 patients[6], Data from the National Health Commission of China demonstrated that 35% of patients diagnosed with COVID-19 had hypertension and 17% had coronary heart disease.[7] The previous studies were done on a hospitalized patients. In our study we included patients both out and in patients and in different levels of the disease.

The most common patients complaints were chest pain (with 75% of the subjects complain from chest pain during the illness) and palpitation (85% of the subjects complain from palpitation during illness).

Other cardiovascular complications was elevated blood pressure illness with (11.6%) of the subjects complain from hypertension.

A report from Li et al.(2020)showed that at least (8%) of covid19 patients)complain from acute myocardial injury and the viral infection causes injury to cardiomyocytes.[8] In our study we obtain results similar to the results of these studies about the relation between COVID-19 and cardiovascular system.

CONCLUSION

Our study results showed that a considerable number of the COVID _ 19 patients complain from cardiovascular symptoms (mainly chest pain and palpitation) during illness and even after recovery. some patients visited their family physician and did investigation related to the cardiovascular system (24% of our patients).

Therefore, patients should be aware about the long _term effects of COVID _ 19 and the important of post recovery follow up.

The follow up and the good evaluation of the patients in the post recovery period may provide good guidance for rehabilitation and prevent any complication may occur.

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