

How of COVID-19 Epidemic Spread and the effect of Heritance factor

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Abstract: This study focuses on to Coronavirus (COVID-19) as an epidemic disease, Aims to how can spread in Libya, Methods and Materials: 21 coronaviruses (COVID-19) patients the age range from 16 years to 72 years old found that incidence compared to the age group highest in age between 31-45 years and above, and the lowest percentage was in the immersive group between the age 16-30 years and less than 16 years and on another side, Results: found that the rate of spread rapid of the Coronavirus (COVID 19) in females is higher than that of males as the ratio 2:1, that 66.7% for females, and 33.3% for males. On the other hand, (CPR, and D-Dimer) are methods to detect cases of COVID-19, it found that 43% of patients with high CRP, while 57% of patients with normal CRP. The Dimer, nearly two-thirds 13 (61.9%) of the patients have normal D -dimer, while eight (38.1%) patients had high D –dimer, 24% of patients are admitted to the intensive care unit, while 76% of patients don't admit to the intensive care unit. Conclusion: the relationship between viral infection and heritance also females are more exposed to infection than males. Knowledge of diagnostic tests for COVID-19 continues to evolve and, from one perspective, highlights the need for them for local validation of positive and negative Ct cutoff values when setting up RTq PCR tests for the detection of SARSCoV2

INTRODUCTION

In late December 2019, a cluster of unexplained pneumonia cases has been reported in Wuhan, Hubei province China [1]. A few days later, the causative agent of this mysterious pneumonia was identified as a new coronavirus. This causative virus has been temporarily named severe acute respiratory syndrome (SARS) coronavirus 2 and the relevant infected disease has been named coronavirus disease 2019 (COVID-19) by the World Health Organization, respectively [2]. The COVID-19 epidemic is spreading in China and all over the world now [3]. The outbreak has spread substantially to infect 9720 people in China with 213 deaths and to infect 106 people in 19 other countries [4]. In Libya, the first official confirmed case of coronavirus was identified in a man in his seventies, which was recorded by the National Center for Disease Control (NCDC) of Libya on 24 March 2020[5]. The first death was recorded officially on 3 April 2020, of an 85-year-old woman who died after transfer from a hospital. The coronavirus disease 2019 (COVID-19) pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARSCoV2), has caused an unprecedented global social and economic impact and a high number of deaths [6]. Many risk factors have been identified in the progression of COVID-19 to a severe and critical stage, including old age, male gender, underlying comorbidities such as hypertension, diabetes, obesity, chronic lung disease, heart, liver and kidney diseases, tumours, clinical apparent immunodeficiencies, local immunodeficiencies, such as early type I interferon secretion capacity, and pregnancy [7]. Possible complications include acute kidney injury, coagulation disorders, and thromboembolism [8]. The development of lymphopenia and eosinopenia are laboratory indicators of COVID-19 Laboratory parameters to monitor disease progression include lactate dehydrogenase, procalcitonin, high-sensitivity creative protein, pro-inflammation cytokines such as interleukin (IL)6, IL1 β , Krebs von den Lungen6 (KL6), and ferritin [9]. The development of a cytokine storm and extensive chest computed tomography imaging patterns are indicators of severe disease [10]. Additionally, socioeconomic status, diet, lifestyle, geographic differences, ethnicity, exposed viral load, day of initiation Treatment and quality of health care have been reported to influence individual outcomes [11].

Methods

A group of 40 cases from the same family were studied with a trace of their medical history. Swabs were taken to confirm the infection of the virus COVID-19 at the center of vital samples in The "Franaj "by (PCR). After confirming the injury in all cases, the medical conditions were tracked by the competent doctor. Symptoms were identified in each case and at all ages. In cases where there were obvious symptoms, the following tests were performed on them: -

(a) – PCR.

(b)- D-Dimer.

(c) – CBC.

PCR: the real-time reverse transcriptase-polymerase chain reaction (RT-qPCR) is the assay of choice for the Diagnosis of COVID-19 given its speed and accuracy in informing about active coronavirus (CoV) infection [12],[20]. Currently, different RTqPCR protocols with different sensitivity/specificity are used to perform this test; some of Currently, different RTqPCR protocols with different sensitivity/specificity are used to perform this test; some D-dimer: level is one of the measures used in patients to detect thrombosis [13], [21]. –CBC A complete blood count (CBC) is a blood test used to evaluate your overall health and detect a wide range of disorders, including anaemia, infection and leukaemia [14],[19],[22]. The type of study method has been used in the selected sample type, in this study where twenty-one persons have been selected.

Results and Discussions

The first appearance of Corona Virus (COVID – 19) was in the summer of 2019 and spread to Libya starting on 24-03-2021. By the end of the survey period, data had been collected from 21 person (Covid 19) patients. The ages range from 13 to 72 years old with a mean of 42.47 years \pm 14.20. The mean and standard deviation (SD) of the age of the patient has been measured in (Table 1).

Table 1. The mean and Standard Division of the age of patient, values shown are the mean \pm S.D.

Patient	Mean	SD	Minimum	maximum
Age	42.47	14.20	13	72

On the other hand as in figure 1. That describes the distribution of patients according to age found that two patients (9.45%) were less than 16 years old, one patient (4.75%) was between 16 and 30 years old, nine patients (42.9%) were between 31 and 45 years old, and nine patients (42.9%) were age more than 45 years old as described on figure 1.

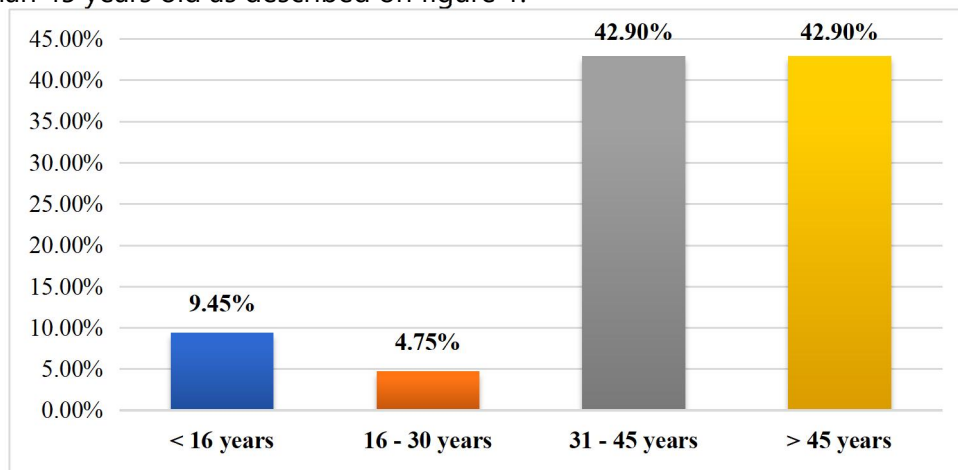


Figure 1. Distribution of patient according to age.

It was found as in figure 1, that the incidence compared to the age group was highest in the age between 31-45 years and above, and the lowest percentage was in the immersive group between the ages 16-30 years and less than 16 years. Figure 2. That two-thirds (66.7%) of the total sample were females, while 33.3% of the total sample were male. The ratio of females to males in the study was 2: 1.

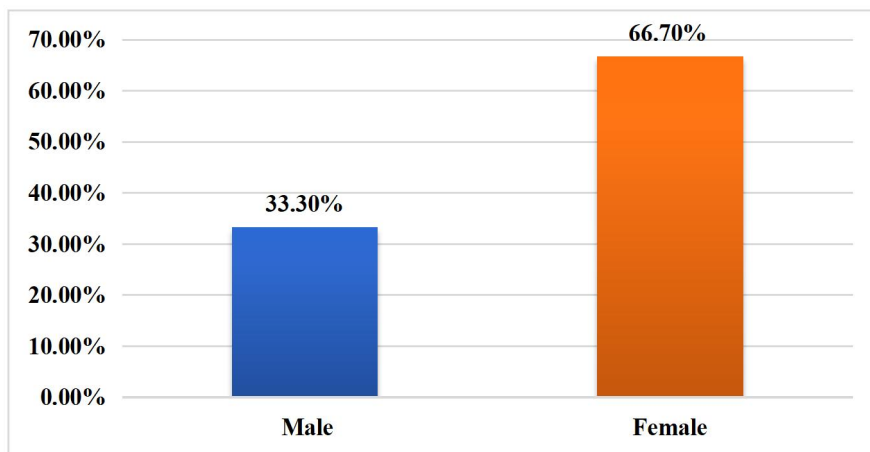


Figure 2. Distribution of patients according to sex.

It was found that the rate of spread rapid of the virus in females is higher than that of males as the ratio is 66.7% for females and 33.3% for males as in figure 2. The CRPs range from 1 to 58.8 with a median of 3. Over half 12 (57%) of the patients have normal CRP, while nine (43%) patients had high CRP as in figure 3.

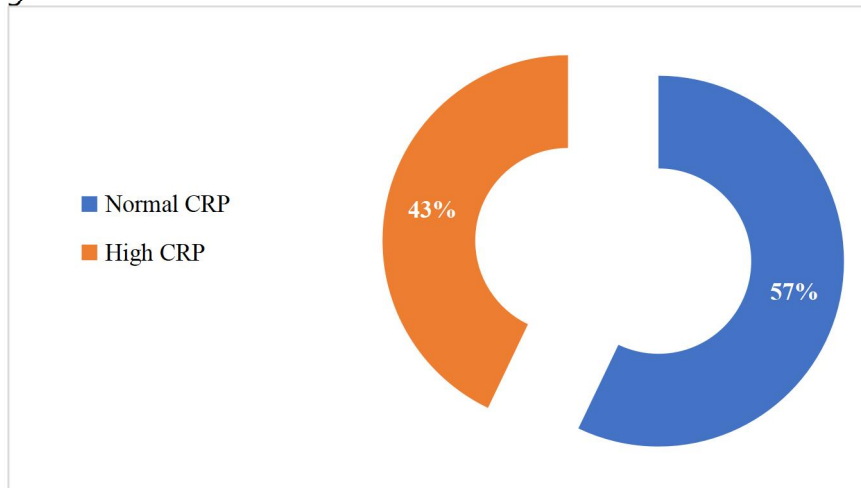


Figure 3: Distribution of CRP according to normal or high CRP.

Used the CPR method to detect cases of COVID-19 and how quickly it spread in case of infection. It found that 43% of patients with high CRP, while 57% of patients with normal CRP as in figure 3. The D-Dimer. Nearly two-thirds of 13 (61.9%) of the patients have normal D -dimer, while eight (38.1%) patients had high D –dimer as in figure 4.

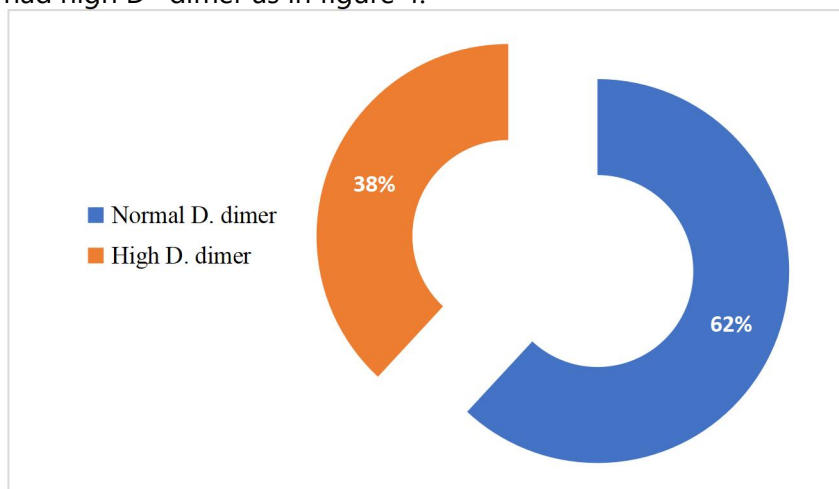


Figure 4. Distribution of D. dimer according to normal or high D.dimer.

The D-Dimer method to detect cases of COVID-19 and how quickly it spread in case of infection and found that 62% of patients with normal D.dimer. On other hand found 38% of patients with high D.dimer as in figure 4. In figure 5. Reported that a quarter of 5 patient (23.8%) of patients was admitted to the intensive care unit, while 16 patient (76.2%) of them were not admitted to the intensive care unit.

This study found that 24% of patients were admitted to the intensive care unit, while 76% of the patient doesn't admit to the intensive care unit as in figure 5.

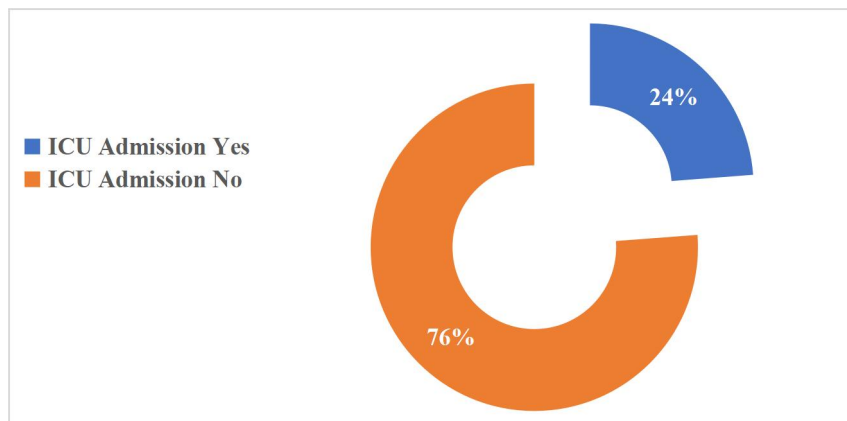


Figure 5. Admission of corona virus patient to Intensive Care Unit (ICU).

Discussion

the study focused on Coronavirus (COVID-19) as an epidemic disease and how can spread in Libya started studying 21 coronaviruses (COVID-19) patients and the age range from 16 years to 72 years old found that the incidence compared to the age group was highest in the age between 31-45 years and above, and the lowest percentage was in the immersive group between the age 16-30 years and less than 16 years and on other side found that the rate of spread rapid of the Coronavirus (COVID 19) in females is higher than that of males as the ratio 2:1, that 66.7% for females, and 33.3% for males. On other hand, we used the (CPR, and D-Dimer) methods to detect cases of COVID-19 and how quickly it spread in case of infection. It found that 43% of patients with high CRP, while 57% of patients with normal CRP. On other hand The D.dimer, nearly two-thirds 13 (61.9%) of the patients have normal D -dimer, while eight (38.1%) patients had high D –dimer, finally In this study found that 24% of patients admitted to the intensive care unit, while 76% patient doesn't admit to the intensive care unit. The 21 persons from the same family have the same symptoms of the infection. The study revealed that the virus type was " DALTA" type and confirmed by Tunis Health Center [15],[23]. After their full tests have been performed. Knowledge of diagnostic tests for COVID-19 is still evolving and, as a prospect, underscores the need for local validation of positive-negative Ct cut-off values when establishing RT-qPCR assays for SARS-CoV-2 detection [16], [17], [18].

Conclusion

The study shows that there is a relationship between viral infection and heritage also females are more exposed to infection than males

Knowledge of diagnostic tests for COVID-19 continues to evolve and, from one perspective, highlights the need for them for local validation of positive and negative Ct cutoff values when setting up RTqPCR tests for the detection of SARSCoV2

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