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GENDER WISE PREVALENCE OF COVID 19 IgG ANTIBODIES

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Abstract

Background: Uncertain data indicate that the levels of SARS-CoV2 IgG in males and females differ. Therefore, we looked into the dynamic features of immunoglobulin G (IgG) synthesis and compared them between the sexes. **Materials and Methods:** The present epidemiological hospital based study was conducted at government medical college, Rajouri to assess the Covid IgG levels in local community from December 2020 to May 2021 of 500 OPD patients. **Result:** 500 patients participated in the study to evaluate the Covid IgG antibody. Out of the total patients, 73.09% of the male patients had positive results for COVID IgG, and 70.07% of the female patients had positive results. **Conclusion:** We suggest that greater attention should be required to the patients whose IgG antibody was at low levels, and monitoring the IgG antibody may be a possible way to predict COVID19 prognosis.

INTRODUCTION

SARS-CoV-2, also known as COVID-19, is the cause of an unidentified pneumonia outbreak that struck Wuhan and was characterised by some unusual extrapulmonary symptoms in patients, such as anorexia, diarrhoea, and vomiting, which were not always accompanied by respiratory symptoms.[1] Some of these patients had a reduced ability to respond to treatment after being admitted to the hospital and went on to develop severe pneumonia, pulmonary edoema, ARDS, or multiple organ failure. The clinical spectrum of COVID-19 includes respiratory failure, asymptomatic or pauci symptomatic forms, sepsis, septic shock, and MODS, among other multiorgan and systemic symptoms. Early infection symptoms were vague, and both infectious and non-infectious etiologies might be included in the differential diagnosis.[2] Several COVID 19 mutations are presently ubiquitous in nature, and some of them are proven to be more infectious and destructive than the original illness. Coronal variations such as Alpha, Beta, Gamma, Delta, Omicron, Lambda, and Mu have been seen by scientists. The most typical COVID-19 symptoms are A fever, coughing, difficulty breathing, exhaustion, chills, and occasionally shaking are a few of the symptoms. fatigue, a sore throat, a headache, a runny or congested nose, a loss of flavour or smell, nausea, and diarrhoea.[3,4]

The infection can cause septic shock, pneumonia, respiratory failure, heart troubles, liver disorders, and even death. Numerous symptoms might be brought on by a disorder termed cytokine release syndrome or a cytokine storm. COVID-19 issues A sickness at this point causes your immune system to flood your circulatory system with inflammatory substances known as cytokines. Your organs may be harmed, and tissue may be destroyed. In certain rare cases, lung transfers were necessary.[5,6]

The seventh edition of the New Coronavirus Pneumonia Prevention and Control Program included the detection of serum SARS-CoV-2 specific immunoglobulin G (IgG) antibodies for clinical diagnosis of SARS-CoV-2 infection. These antibodies may be seen roughly a week after the beginning of symptoms.[7-9]

We looked at the dynamic aspects of immunoglobulin G (IgG) production and compared them between both genders since there were conflicting results that suggested a difference between male and female levels of the SARS-CoV-2 IgG.

MATERIALS AND METHODS

The present epidemiological hospital-based study was conducted at Government Medical College,

Rajouri to assess the Covid IgG levels in local community from December 2020 to May 2021 of OPD patients.500 patients in all were included in the trial. Informed consent were signed by the study participants.

Anti- SARS- CoV- 2 IgG antibody detection
The supernatant serum from centrifuging blood samples at room temperature was employed for detection. With the use of a commercially available kit, the VITROS ECi Immunodiagnostic fully automated analyser assessed the serum anti-SARS-CoV-2 IgG level. The manufacturer's protocols were strictly followed throughout the entire detection process.

Statistical Analysis
SPSS software, version 22.0 for Windows; IBM Corporation, Software Group, Route 100, Somers, New York 10589; was used to conduct the statistical analysis for this study. The mean and standard deviation were used to express continuous variables (SD). To compare the CovidIgG levels in the male and female population, an independent t-test was employed. Statistics were deemed significant at p 0.05.

RESULTS

The study was carried out to assess the CovidIgG antibody on 500 patients. From which 361 (72.2%) were positive and 139 (27.8%) were negative. Out of 500 patients 353 were male and 147 were female. Out of 353 male patients 258 (73.09%) were shown positive results and 95 (26.91%) were negative results. On the other hand out of 147 female patients 103 (70.07%) were shown positive results and 44 (29.93%) were show negative results as shown in [Table 1].

Table 1: Gender wise Distribution

	Non-Reactive	Reactive	Total
Male	95 (26.91%)	258 (73.09%)	353
Female	44 (29.93%)	103 (70.07%)	147
Total	139 (27.80%)	361 (72.20%)	500

Table 2: Comparison of Covid IgG levels in male and female

	Male	Female
N	353	147
Mean (AU/ml)	6.2387	5.9582
Std. Deviation (AU/ml)	5.51594	5.18076
T	0.527	
p-value	0.598	

Comparison of Covid IgG levels in male and female was done by the independent t test. The mean level of male patients Covid IgG was 6.2387±5.51594 AU/ml which was showing no statistical difference when compared to female patients with mean value 5.9582±5.18076 AU/ml as p-value was greater than 0.05 as shown in [Table 2].

DISCUSSION

Midway through 2020, following an outbreak of SARS-CoV-2 in China in December 2019, the World Health Organization identified SARS-CoV-2 as a unique kind of Covid. The surge quickly covered the entire planet.[10] The SARS-CoV-2 coronavirus is referred to medical doctors as a respiratory tract illness. Your upper respiratory system (sinuses, nose, and throat) or lower respiratory system (windpipe and lungs) may be affected by it.[11] It spreads mostly via direct contact with those who are sick, like other Covids. The Middle East respiratory syndrome (MERS) and sudden acute respiratory illness are two of the seven primary forms of Covid that can cause deadly infections (SARS). The majority of the colds we experience throughout the year are primarily the fault of the other Covids, but they pose little real threat to healthy people in any event.[12]

Numerous sero-surveillance studies that focused on antibodies against SARS-CoV-2 have demonstrated to be highly beneficial in comprehending the pandemic's spread. Because the seroprevalence varies widely due to a variety of factors, scientific studies have urged continuing surveillance via seroprevalence studies to measure and track the increasing incidence of COVID-19.[13] To properly treat COVID, a primary care physician and public health specialists must comprehend the whole range of immunological protection shown by this degree of seropositivity in the general population.[14] We discovered that 70.07% of female participants and 73.09% of male participants in the population exhibited positive CovidIgG antibodies, respectively. Here, we found that there weren't many differences between patients who were male and female in terms of the development and dynamics of the SARS-CoV-2 IgG antibody. Male patients were more likely than female patients to produce high levels of SARS-CoV-2 IgG antibodies in the severe status, but this difference was not statistically significant. Other studies also came to the same conclusion that there is no appreciable difference in seropositivity between genders.[15,16]

CONCLUSION

In this work, we identified and evaluated the SARSCoV2 IgG antibody of 500 patients and discovered that there is no difference between male and female patients in the formation of IgG antibody levels after SARSCoV2 infection in severe condition. As a result, we suggest that patients with low IgG antibody levels be given special consideration, and that monitoring the IgG antibody may be a useful strategy for determining the prognosis of COVID19.

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