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HOT TOPICS ON
INFLUENZA,
RSV AND
COVID-19

ABSTRACT BOOK

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ON INFLUENZA AND OTHER
RESPIRATORY VIRUSES



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Assessment of seroprevalence to SARS-COV-2 among blood plasma donors during the pre-vaccination stage of the COVID-19 pandemic in Ukraine

Topic: *Epidemiology, surveillance and modelling of influenza, RSV disease and COVID-19, including virus evolution and strain selection*

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BACKGROUND

COVID-19 is characterized by a polymorphism of clinical symptoms from an asymptomatic and mild course of the disease to severe and fatal cases. The number of reported COVID-19 cases does not reflect the real epidemic situation. Assessment of seroprevalence to the SARS-CoV-2 helps to inform how the virus spreads among the population and also informs forecasts of the dynamics and patterns of the epidemic process.

This work aimed to assess the seroprevalence to the SARS-CoV-2 virus among blood plasma donors in the Kharkiv oblast (Ukraine).

METHODS

A cross-sectional epidemiological study of seroprevalence to the SARS-CoV-2 was carried out among blood plasma donors from May 6, 2020, to March 16, 2021. Blood plasma samples were received from 6399 donors. Among them, there were 4035 (63.1%) men and no vaccinated persons. The age of the participants ranged from 18 to 72 years, mean was 29.5 years, mode was 19 years. The level of antibodies against the nucleocapsid antigen was tested by the electrochemiluminescence method.

RESULTS

In the Kharkiv oblast, the first COVID-19 case was registered in March 2020. The number of cases increased to 248 in April 2020, to 817 in May, in June there was a slight increase in the incidence to 852 cases, after which the incidence began sharply grow, and 19,044 cases were reported in November 2020. Within three months, the number of cases detected per month ranged from 14,036 in December 2020 to 5873 in February 2021. In March 2021, the maximum number of monthly cases was registered (19989 COVID-19 patients).

We found out that the seroprevalence to the SARS-CoV-2 among donors was 2.2% in May and 1.8% in June 2020. In the following months, there was a significant increase in the indicator, and in January 2021 it reached 53.8%. In February 2021 and March 2021, there was a slight decrease in the proportion of donors in whose plasma specific antibodies were determined and was 48.9% and 46.4% in February 2021 and March 2021, respectively.

CONCLUSIONS

The growth of the seroprevalence to the SARS-CoV-2 among blood plasma donors is the marker of an increase in the spread of the SARS-CoV-2 among donors, the majority of whom are the young adult population of the Kharkiv oblast, indicating the intensity of the COVID-19 epidemic process. Herd immunity is formed gradually and has not yet reached the level necessary to curb the circulation of the pathogen. Because of our limited understanding on the duration of humoral immunity to COVID-19, and our challenges with monitoring the circulation of the pathogen toward herd immunity, it remains important to study seroprevalence dynamics.