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LABORATORY TESTING FOR COVID 19 (SARS CoV 2): CURRENT SITUATION AND TREND IN UKRAINE

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Relevance: COVID 19 (SARS-CoV-2) is a key global public health emergency all over the world, including in Ukraine. The development of a pandemic around the world have simultaneously caused not only a rapid increase in interest to COVID-19 laboratory testing among Internet users and potential developers of test systems, but also served as a powerful challenge for laboratory services. Despite the importance of the problem, the accumulated experience in laboratory medicine requir further systematization.

Aim of the research was to examine the manifestation of interest in the problem of laboratory research of COVID-19 among users of the global network Google, compare the current trends in laboratory research in Ukraine with European and Asian countries, analyse modern laboratory methods.

Materials and methods: Google Trends were used to search Google queries concerning the Cyrillic terms in Ukrainian and Russian. Google Public Data was used to search Google queries regarding searching public dataset information about total amount of the tests for detection COVID-19 in Ukraine. The search was done for the period from 01/2020 to 01/2021. The study reviewed the modern data, pro and contra, trends in laboratory methods of diagnostics for COVID-19.

Results: The problem of coronavirus is of strong interest among Google users in Ukraine. The maximum interest in both the coronavirus topic and testing was observed in April and November 2020. Specifying the request by the type of testing, using the following widely used words "PCR" or "antibodies", allows us to state that interest in the topic of detecting RNA virus by PCR is much higher than interest in the topic of detecting antibodies by ELISA. The demand for a positive coronavirus test remains consistently high. Analysis of Google Public Data shown that the level of presumptive detection of viral infection using laboratory testing is higher than the level of confirmed infection by laboratory testing. It was noted that the maximum indicative and confirmed level of infection falls on December 2020 and January 2021. The maximum number of daily laboratory tests in Ukraine falls on November 2020. The number of daily laboratory tests performed is in 3 times lower in Ukraine than in other 49 countries. It was shown that growing demand for testing to detect Covid-19 has required accelerated development across multiple platforms of molecular, serological and point-of-care testing. It was carried out an analysis of the advantages and disadvantages of laboratory methods, which will assess their critical importance for the screening, treatment, prevention and control of COVID 19.

Conclusions: Finally, we showed that interest of Ukrainian Google users to coronavirus laboratory testing was almost comparable in time to quarantine restrictions. These finding was demonstrated that the number of performed laboratory detection and cases of laboratory-confirmed COVID-19 infection is currently actual and could possibly serve as an important basis for the selection and creation of effective algorithms and strategies for laboratory testing in public health.

Key words: COVID-19, laboratory testing, Google Trends, Google Public Data

INFLAMMATORY BIOMARKERS ASSOCIATED WITH DEVELOPING CRITICAL STATE OF COVID-19: A META-ANALYSIS

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Relevance: Coronavirus disease 2019 (COVID-19) is an escalating global epidemic caused by SARS-CoV-2, with a high mortality in critical patients. The high mortality rate of COVID-19 patients is mainly caused by the progression from the mild condition to the critical illness. Therefore, it is an urgent need for effective indicators to predict disease severity, early and rapid diagnosis, monitoring, risk assessment in SARS-CoV-2 infected patients.

Aim of the research: conduct meta-analysis in an attempt to systematically collect and evaluate the associations of comorbidity factors with the severity and prognosis of COVID-19.

Materials and methods: Based on systematic search in PubMed, Google Scholar up to January 28, 2021, a total of 5 eligible articles with 3129 laboratory-confirmed COVID-19 cohorts were included. Pairwise comparisons between severe and critical patients who were transferred to the intensive care unit (ICU) were performed for 6 laboratory parameters. The severe patients should have, at least one of the following conditions should be additionally met: 1) respiratory distress, RR ≥30 times/minute, 2)