



**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
ЗАПОРІЗЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ**

НАУКОВЕ ТОВАРИСТВО МОЛОДИХ ВЧЕНИХ ТА СТУДЕНТІВ

**ЗБІРНИК ТЕЗ ДОПОВІДЕЙ
«НАУКОВОЇ КОНФЕРЕНЦІЇ СТУДЕНТІВ ЗДМУ – 2021»**

**В РАМКАХ І туру «ВСЕУКРАЇНСЬКОГО КОНКУРСУ СТУДЕНТСЬКИХ
НАУКОВИХ РОБІТ З ГАЛУЗЕЙ ЗВАНЬ І СПЕЦІАЛЬНОСТЕЙ
У 2020 – 2021 Н.Р.»**

5 лютого 2021 року

Запоріжжя – 2021

Aim of this study: The aim of this study was to examine which translations of “coronaviruses”, “testing coronaviruses” or “PCR coronaviruses” could be used in the native Cyrillic languages, especially in Ukrainian and Russian, and to compare total laboratory test per 01/2020-01/2021 year in Ukraine, as well as to assess trends in the development of detection methods for covid-19.

Materials and methods: Google Trends (GT) was used to search Google queries concerning The Cyrillic terms in Ukrainian and Russian were used. 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 summarized the application situation, advantages, disadvantages and associated technology improvement trends of molecular diagnostics for COVID-19, identifies knowledge gaps and indicates future priorities for research in this field.

Results: The Ukrainian Google users searched the Cyrillic equivalents for “coronaviruses”, “testing coronaviruses” or “PCR coronaviruses”. The maximum peak of attention to the problem of testing among the Ukrainian population was noted in March 2020. It was reported that number of test reported each day has maximum level (n=47479) in November 2020. To meet the exponential demand in testing, there has been an accelerated development of both molecular and serological assays across a plethora of platforms. This study discusses the current literature on these modalities, including nucleic acid amplification tests, direct viral antigen tests and the rapidly expanding laboratory-based and point of care serological tests. Rapid and accurate molecular diagnostic technologies are crucial for the screening, isolation, treatment, prevention and control of COVID-19.

Conclusion: Modern complementary tests will inform crucial decisions by healthcare providers, and understanding their strengths and limitations will be critical to their judicious application for the development of algorithmic approaches to treatment and public health strategies.

THE HSP70 IN THE IMPLEMENTATION OF NEUROPROTECTIVE EFFECT OF SELECTIVE ESTROGEN RECEPTOR MODULATOR (SERM)

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The aim of the research: to determine the value of the heat shock protein HSP 70 in the implementation of the mechanism of neuroprotective actions of selective estrogen receptor modulator (SERM) – (Z)-2-[4-(1,2-diphenyl-1-butenil) fenoxy]-N,N-dimethilaethanamin citrate. The objective of this study was to estimate the influence of SERM on the expression of HSP70, the activity of the thiol-disulfide system of neurons and mitochondria development of neuronal apoptosis in vitro, with a deficit of restored glutathione.

Methods: neurons of cortex isolated extemporale from the brain of a week-long white outbred rats. Deficit of glutathione caused by the introduction into suspension of neurons of D,L-butionin-S.R-sulfoxime (BSO,500 мкМ). The agent was selected on ability to influence the intracellular synthesis of glutathione. Apoptotic modified neurons identified by painting of the etodium bromide, the expression of HSP 70 was determined by method of immunoblotting. In the mitochondria and citosole determined the content of restored glutathione, markers of oxidative modification of proteins. Also determined the charge of the mitochondrial membrane and level of opening of the mitochondrial permeability transition pore.

Results: it was determined that the introduction of the incubation environment SERM (0.1 мкМ) has resulted in the decrease of intensity of oxidative stress (reduction of aldehyde-phenyl-hydrazones, ketone-phenyl-hydrazones, nitrotyrosine, increase in the mt-SOD); and also restoration of thiol-disulfide

balance (increase the concentration of restored glutathione and decrease its oxidized form; and increase the activity of enzymes of thiol-disulfide system – GPR and GR, improvement the level of mitochondrial metabolism and activity of the mitochondrial mt-SOD and inhibition the opening of mitochondrial permeability transition pore and conservation of the charge of mitochondria. Also, there has been the expression of HSP 70 in samples with SERM.

Conclusion: neuroprotective action of SERM is due to its direct antioxidant effect and expression of HSP 70 in the activation of SERM estrogen receptors. SERM indirectly through HSP 70 stabilizes oxidative damaged of macromolecules, prevents the opening of mitochondrial permeability transition pore, thereby showing the direct antiapoptotic action.

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

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Background: 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.

The purpose of this investigation was to 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) oxygen saturation $\leq 93\%$ under the resting state, 3) oxygen partial pressure (PaO₂)/oxygen concentration (FiO₂) in arterial blood ≤ 300 mmHg. We describe the epidemiological, clinical and laboratory prognosis of patients with confirmed infection of SARS-CoV-2 who were hospitalized in ICU.

Results: It was shown that most patients have multiple symptoms. Cough, fatigue, myalgia, sore throat are also common symptoms in patients infected with SARSCoV-2. Patients who were admitted to the intensive care unit was associated with significantly higher levels of WBCs (OR=0.6; 95%CI [0.513, 0.687]), C-reactive protein (OR=1.41; 95%CI [1.322, 1.508]), procalcitonin (PCT) (OR=1.21; 95%CI [1.119, 1.305]), IL-6 (OR=1.46; 95%CI [1.373, 1.555]), but lower levels of platelets (OR= - 0.27; 95%CI [-0.354, - 0.185]) and lymphocytes (OR= - 0.83; 95%CI [-1.19, -0.363]).

Conclusion: COVID-19, a novel coronavirus has been responsible for millions of cases of deaths worldwide. Infected patients progress to critical severe state which required high-flow oxygen support, compromising the availability of health resources. Critical group experienced more multiorgan damage which was partially induced by direct attack of SARS-CoV-2. Among these patients, the most often detected high level of pro-inflammatory markers (PCT, WBS, CRP)/ Thus, early finding and laboratory markers diagnostics have a certain extent of positive effect on the prognosis and judge the severity of the illness in a timely manner.