



THE ISSUE CONTAINS:

Proceedings of the 13th
International Scientific
and Practical Conference

**SCIENCE AND PRACTICE:
IMPLEMENTATION TO
MODERN SOCIETY**

Manchester, Great Britain
16-18.10.2022

SCIENTIFIC COLLECTION
INTERCONF

No 128
October, 2022

Scientific Collection «InterConf»

No 128

October, 2022

THE ISSUE CONTAINS:

Proceedings of the 13th International
Scientific and Practical Conference

**SCIENCE AND PRACTICE:
IMPLEMENTATION TO
MODERN SOCIETY**

MANCHESTER, GREAT BRITAIN

October 16–18, 2022



MANCHESTER
2022

UDC 001.1

- S 40** *Scientific Collection «InterConf»*, (128): with the Proceedings of the 13th International Scientific and Practical Conference «Science and Practice: Implementation to Modern Society» (October 16-18, 2022; Manchester, Great Britain) by the SPC «InterConf». Peal Press Ltd., 2022. 272 p.
ISBN 978-0-216-01072-7 (series)

EDITOR

Anna Svoboda

Doctoral student
University of Economics;
Czech Republic
annasvobodaprague@yahoo.com

COORDINATOR

Mariia Granko

Coordination Director in Ukraine
Scientific Publishing Center
«InterConf»; Ukraine
info@interconf.top

EDITORIAL BOARD

Temur Narbaev (PhD)
Tashkent Pediatric Medical Institute,
Republic of Uzbekistan;
temur1972@inbox.ru

Nataliia Mykhalitska (PhD
in Public Administration)
Lviv State University of
Internal Affairs; Ukraine

Dan Goltsman (Doctoral student)
Riga Stradiņš University;
Republic of Latvia;

Katherine Richard (DSc in Law),
Hasselt University; Kingdom of Belgium
katherine.richard@protonmail.com;

Richard Brouillet (LL.B.),
University of Ottawa; Canada;

Stanyslav Novak (DSc in Engineering)
University of Warsaw; Poland
novaks657@gmail.com;

Kanako Tanaka (PhD in Engineering),
Japan Science and Technology
Agency; Japan;

Mark Alexandr Wagner (DSc. in Psychology)
University of Vienna; Austria
mw6002832@gmail.com;

Alexander Schieler (PhD in Sociology),
Transilvania University of Brasov;
Romania

Svitlana Lykholat (PhD in Economics),
Lviv Polytechnic National University;
Ukraine

Dmytro Marchenko (PhD in Engineering)
Mykolayiv National Agrarian University
(MNAU); Ukraine;

Rakhmonov Aziz Bositovich (PhD in Pedagogy)
Uzbek State University of World
Languages; Republic of Uzbekistan;

Mariana Vereskliia (PhD in Pedagogy)
Lviv State University of Internal
Affairs; Ukraine

Dr. Albena Yaneva (DSc. in Sociology
and Anthropology),
Manchester School of Architecture; UK;

Vera Gorak (PhD in Economics)
Karlovarská Krajská Nemocnice;
Czech Republic
veragorak.assist@gmail.com;

Polina Vuitsik (PhD in Economics)
Jagiellonian University; Poland
p.vuitsik.prof@gmail.com;

Elise Bant (LL.D.),
The University of Sydney; Australia;

George McGrown (PhD in Finance)
University of Florida; USA
mcgrown.geor@gmail.com;


Vagif Sultanly (DSc in Philology)
Baku State University;
Republic of Azerbaijan

Kamilə Əliağa qızı Əliyeva (DSc
in Biology)
Baku State University;
Republic of Azerbaijan








Please, cite as shown below:

1. Surname, N. & Surname, N. (2022). Title of an article. *Scientific Collection «InterConf»*, (128), 21-27. Retrieved from <https://archive.interconf.center/index.php/conference-proceeding...>


This issue of Scientific Collection «InterConf» contains the materials of the International Scientific and Practical Conference. The conference provides an interdisciplinary forum for researchers, practitioners and scholars to present and discuss the most recent innovations and developments in modern science. The aim of conference is to enable academics, researchers, practitioners and college students to publish their research findings, ideas, developments, and innovations.

	Філяшкін Н.К.	ПОВЫШЕНИЕ ТОЧНОСТИ ИНЕРЦИАЛЬНОЙ ГИРОВЕРТИКАЛИ ПУТЕМ ДЕМПФИРОВАНИЯ ШУЛЕРОВСКИХ КОЛЕБАНИЙ	156
---	---------------	---	-----



MEDICINE AND PHARMACY

	Gadaev A.G. Ismoilova M.I.	COMPARATIVE ANALYSIS OF CALPROTECTIN, HELICOBACTER PYLORI IN FECES AND INTERLEUKIN – 6 IN THE BLOOD OF PATIENTS WITH AND WITHOUT COVID-19	166
	Gadaev A.G. Makhmanov L.S. Turakulov R.I.	THE ROLE OF SOME EXTERNAL FACTORS IN THE DEVELOPMENT OF IRON DEFICIENCY ANEMIA ASSOCIATED WITH HELICOBACTER PYLORI	170
	Gasimova M.C. Gurbanov A.I.	CHANGES IN THE NORMAL INTESTINAL MICROFLORA DURING HELICOBACTER PYLORI- ASSOCIATED GASTRODUODENAL DISEASES	176
	Khomenko L. Sorochenko H. Ostapko O.	ASSESSMENT OF CARIESPROMPTIC EFFECTIVENESS OF TOOTHPASTES WITH DIFFERENT FLUORIDE COMPOUNDS	178
	Маса'дех М.М.М. Малачкова Н.В.	ЗВ'ЯЗОК МІЖ ПОЛІМОРФІЗМОМ ГЕНА TNF ТА ВІКОВОЮ МАКУЛЯРНОЮ ДЕГЕНЕРАЦІЄЮ	182
	Можаєв І.В. Носальська Т.М. Довга І.М. Бомко Т.В. Частій Т.В. Іваннік В.Ю.	ДОСЛІДЖЕННЯ НЕШКІДЛИВОСТІ КОМБІНОВАНОЇ МАЗІ НА ОСНОВІ ЕКСТРАКТУ ГОРІХА ВОЛОСЬКОГО ВУГЛЕКИСЛОТНОГО	184
	Нейматов И.Ф.	ПУТИ УЛУЧШЕНИЕ ЛЕЧЕНИЯ РЕЗУЛЬТАТОВ ПРОФИЛАКТИКИ СПАЕЧНОЙ БОЛЕЗНИ	192


NATURE MANAGEMENT, RESOURCE SAVING AND ECOLOGY

	Крупко Г.Д.	АГРОХІМІЧНА ХАРАКТЕРИСТИКА ҐРУНТІВ БЕРЕЗНІВСЬКОГО РАЙОНУ РІВНЕНСЬКОЇ ОБЛАСТІ	195
---	-------------	--	-----

PHYSICS AND MATHS

	Karachevtseva L. Kartel M. Lytvynenko O. Sementsov Y.	OPTICAL PROPERTIES OF COMPOSITES «POLYMER – MULTIWALL CNT»: MEASUREMENTS, ANALYSIS, INTERPRETATION	209
	Mammadova A.M.	CONFINED POSITION-DEPENDENT MASS HARMONIC OSCILLATOR MODELS WITH DIFFERENT KINETIC ENERGY OPERATORS UNDER THE HOMOGENEOUS GRAVITATIONAL FIELD	218

CHEMISTRY AND MATERIALS SCIENCE

	Aliyeva E.C.	STUDY OF THE CHEMICAL COMPOSITION AND PROPERTIES OF SAFFRON GROWING IN AZERBAIJAN	221
---	--------------	---	-----

MEDICINE AND PHARMACY

Comparative analysis of calprotectin, helicobacter pylori in feces and interleukin – 6 in the blood of patients with and without COVID-19

Gadaev Abdigaffar Gadaevich¹, Ismoilova Muazzam Isroilovna²

¹ Doctor of Medical Sciences, professor of the Department of Internal Medicine № 3;
Tashkent Medical Academy; Republic of Uzbekistan

² Assistant of the Department of Internal Medicine;
Fergana Medical Institute of Public Health; Republic of Uzbekistan

Introduction. It has been stated by some researchers, that the first wave of Covid-19 infection affected mainly the respiratory system, and in the second wave, the symptoms of the gastrointestinal system were more characteristic [4, 7].

According to a number of studies, the RNA of Covid-19 is detected from the 5th day of the disease, and its peak corresponds to the 11th day. In the feces of some patients, RNA is preserved even after the respiratory symptoms disappear and the appropriate tests from the respiratory organs are negative [1, 5, 6, 8, 9, 10].

It is known that the coronavirus enters the body through angiotensin-converting enzyme (ACE 2) receptors. Their high expression is observed not only in alveolar lung cells, but also in gastric, duodenal, and rectal glandular epithelial cells [2, 3, 11] and this in turn may cause gastrointestinal symptoms in this infection [8].

In the literature we studied, there is limited information on the changes observed in patients "relatively recovered" from Covid-19 with comorbid diseases of various internal organs, including gastrointestinal system. However, their timely detection and secondary prevention procedures are of great practical importance.

Aim of the study: To examine the state of the gastrointestinal organs of patients, recovered from Covid-19 using indicators of calprotectin and Helicobacter pylori in

MEDICINE AND PHARMACY

feces and interleukin-6 in blood.

Materials and methods of the study: In accordance with the aim of the study, 100 patients with gastrointestinal symptoms were observed. 42 of them (42%) were men and 58 (58%) were women. Patients were divided into 2 groups. The first group consisted of patients "relatively recovered" from Covid-19 with no detected immunoglobulin M but with gastrointestinal symptoms (27 men and 33 women; average age 55.06 ± 2.1 years).

The second, i.e. control group, consisted of patients, who did not have Covid-19 but had gastrointestinal symptoms (15 men and 25 women; average age 63.4 ± 1.5 years).

The levels of calprotectin and *Helicobacter pylori* in feces as well as interleukin-6 in the blood of patients involved in the study were measured.

Calprotectin in feces was evaluated in mgs by "sandwich" method (ELISA) using diagnostic kit RIDASCREEN Calprotectin immunoenzymatic test (R-Biopharm, Germany).

Helicobacter pylori was evaluated with "PЭД *Helicobacter pylori*" (Russia) using the immunochromatic test method.

In order to evaluate serum interleukin-6 levels, a package of 96 tests of by the company "VECTOR-BEST AO" (Russia) was used. This kit is based on the quantitative determination of the above-mentioned cytokine in human blood serum using an immunoenzymatic assay.

For data processing MS Excel (2016) computer program was used. Arithmetic mean and standard deviation (M \pm m) of all data in following tables were calculated. To determine significance of difference between groups Student's paired and unpaired t-tests for quantitative indices. Differences were considered to be statistically significant when $p < 0.05$.

Analysis of the study results. It is of great practical importance to evaluate inflammatory processes and permeability in the intestine of patients with Covid-19 and to restore it. For this purpose, we conducted a series of special biochemical examinations in our patients before the treatment procedures and studied the correlations between them.

The number of patients with *Helicobacter pylori* in their feces was compared in percentages in the main (with Covid-19) and control (without Covid-19) groups.

H. Pylori was detected in the feces of 40% of the patients of the main group (i.e. patients who have had and "relatively recovered" from Covid-19), and 17.5% of the control group who

MEDICINE AND PHARMACY

haven't had the infection. The differences between the two groups were statistically reliable ($p < 0.05$). These values can be associated with the increase of *H. Pylori* in the body as a result of the coronavirus infection.

Calprotectin values were 114.4 ± 15.88 $\mu\text{g/g}$ and 68.23 ± 12.64 $\mu\text{g/g}$ in the main and control groups, respectively. Significant ($p < 0.05$) differences were noted when the indicators were compared between the two groups. In patients of the main group, in whom *Helicobacter pylori* was detected, calprotectin values were 184.6 ± 33.25 $\mu\text{g/g}$, and in patients without it, its values were 54.8 ± 7.0 $\mu\text{g/g}$ ($p < 0.0001$). In the control group, the values were 84.5 ± 29 pg/ml and 57.6 ± 12.5 pg/ml , respectively. The obtained results show that the presence of *Helicobacter pylori* in the body of the patients infected with the coronavirus causes more intense inflammatory processes in the intestines than those without the infection. High levels of calprotectin confirm the persistence of inflammatory processes in the intestines even after the systemic effects of the coronavirus infection disappears.

In addition to the above, interleukin-6 indicators were on average 20.16 ± 1.44 mmol/l in patients, "relatively recovered" from Covid-19, and 11.25 ± 1.4 mmol/l in control patients, and the differences were highly significant ($p < 0.05$). In the patients of the main group, in whom *Helicobacter pylori* was detected, interleukin-6 values were 26.1 ± 1.7 $\mu\text{g/g}$ and in the main group patients without *H. pylori*, the values were 14.4 ± 1.74 $\mu\text{g/g}$ and were reliably different from each other ($p < 0.0001$). In the control group, the values were 14.5 ± 2.49 pg/ml and 8.0 ± 2.5 pg/ml respectively. This confirms that inflammatory cytokines remain elevated not only during the acute period of the disease, but also after clinical recovery and means that patients need rehabilitation measures.

The coronavirus infection directly affects the epithelia of the mucous membrane of the gastrointestinal tract, causing inflammatory processes. These changes cause an increase in inflammatory cytokines and the development of severe pathological conditions in organs. High levels of inflammatory cytokines and its reliable positive correlation with calprotectin in patients "relatively recovered" from Covid-19 with no detectable immunoglobulin M were confirmed in our study as well.

Conclusion. It was found that in the patients who had undergone Covid-19 and clinically recovered from it the levels

MEDICINE AND PHARMACY

of calprotectin and H. pylori in feces and interleukin-6 in the blood were significantly higher compared to the not infected. This indicates that the inflammatory process persists in their body for a long time and they need rehabilitation measures.

References:

- [1] Chan K.H., Poon L.L., Cheng V.C., Guan Y., Hung I.F., Kong J., et al. Detection of SARS coronavirus in patients with suspected SARS. *Emerg Infect Dis.* 2004;10(2):294-9.
- [2] Ismatullaevich T. R., Gadayevich G. A. Dynamics of cytokines and level of hepsidine in patients with chronic heart failure with anemia //European science review. – 2018. – №. 3-4. – С. 193-195.
- [3] Lu R., Zhao X., Li J., Niu P., Yang B., Wu H., et al. Genomic characterization and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *Lancet* 2020; 395(10224):565-74.
- [4] Pan L., Mu M., Ren H. G., Yang P., Sun Y. Wang R., et al. Clinical characteristics of COVID-19 patients with digestive symptoms in Hubei, China: a descriptive, cross-sectional, multicenter study. *Am J Gastroenterol*, 2020;115(5):766-73.
- [5] Tang A., Tong Z.D., Wang H.L., Dai Y.X., Li K.F., Liu J.N., et al. Detection of novel coronavirus by RT-PCR in stool specimen from asymptomatic child, China. *Emerg Infect Dis.* 2020;26(6):1337-39.
- [6] Turakulov R., Sayfullayev M., Gadaeva N. Features of differential diagnosis of anemia of chronic disease and iron deficiency anemia Comorbidities in chronic heart failure //InterConf. – 2020.
- [7] Ungaro R.C., Sullivan T., Colombel J.-F., Patel G. What should gastroenterologists and patients know about COVID-19? *Clin Gastroenterol Hepatol.* 2020;18(7):1409-11.
- [8] Wu Y., Guo C., Tang L., Hong Z., Zhou J., Dong X., et al. Prolonged presence of SARS-CoV-2 viral RNA in faecal samples. *Lancet Gastroenterol Hepatol* 2020;5(5):434-35.
- [9] Xiao F, Tang M, Zheng X, Liu Y, Li X, Shan H. Evidence for Gastrointestinal Infection of SARS-CoV-2. *Gastroenterology.* 2020 May;158(6):1831-1833.e3. doi: 10.1053/j.gastro.2020.02.055. Epub 2020 Mar 3. PMID: 32142773; PMCID: PMC7130181.
- [10] Zhang W., Du R.H., Li B., Xu D., Wang J., Li Z., Lin J. Molecular and serological investigation of 2019-nCoV infected patients: implication of multiple shedding routes. *Emerg Microbes Infect* 2020;9(1):386-9.
- [11] Гадаев А. и др. Особенности течения хронической сердечной недостаточностью, перенесших covid-19 по данным ретроспективного анализа историй болезни //Scientific Collection «InterConf+». – 2022. – №. 22 (113). – С. 338-348.