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COVID-19 in patients with metabolic disorders: focus on management

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Abstract: *obesity, diabetes mellitus, cardiovascular pathologies, male gender and old age contribute to a significant worsening of the COVID-19 course and were associated with an increased risk of acute kidney injury. The study aims to define the main streams of improvement of health care of COVID-19 in patients with metabolic disorders, focusing on the risk factors, and analysing doctoral attitudes to the problems of obesity with an accent on health promotion. Research methods: systemic approach, medical-statistical, questioning, structural-logical analysis, clinical, laboratory and instrumental methods. We conducted a retrospective analysis of the medical documents of COVID-19 in-patients treated at the National Military Medical Clinical Centre "Main Military Clinical Hospital" (n = 146). There were 2 groups according to the severity of COVID-19 (severe course, n = 37, non-severe – n = 109). We also proposed to participate in questioning a group of doctors who were involved in the treatment of patients with COVID-19. Results. A high prevalence of diabetes and hyperglycemia in patients with a severe course of the coronavirus disease was revealed, which requires risk management both at the individual and population levels. According to the received results, majority of doctors concern on the problems of obesity and propose to take care on the preventive strategies to the patients with non-communicable diseases. Initial assessments of the clinical and laboratory data are extremely important as it could be necessary to achieve compensation of diabetes before onset of COVID-19. Health promotion of decreasing weight, giving up smoking, regular physical activity could be helpful in improvement of individual health. We propose identifying obesity as an important independent risk factor which helps in decision-making on hospitalisation of COVID-19 patients before severe respiratory insufficiency starts. Baseline creatinine should be analysed, as rapid increase serum creatinine could be associated with acute kidney injury and may need urgent renal replacement therapy while in the case of not enough resources could be challengeable and causing poor outcomes.*

Keywords: COVID-19, acute kidney injury, risk management, obesity, precision medicine.

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Introduction

Obesity, diabetes mellitus, cardiovascular pathologies, male gender and old age contribute to a significant worsening of the COVID-19 course (Cariou et al, Halushko et al., Holman et al., Huang et al., Lim et al., Liu, Richardson et al., 2020, Guarisco & Leonetti, Morys & Dagher, Ng et al., 2021, Cinti & Cinti, Saito et al., Wang et al, 2022). These factors were associated with increased risk of acute kidney injury (AKI) in COVID-19 patients (Menez, 2023).

Aim

The study aims to define the main streams of improvement of health care of COVID-19 in patients with metabolic disorders, focusing on the risk factors, and analysing doctoral attitudes to the problems of obesity with an accent on health promotion.

Materials and methods

The medical charts of patients (n = 146) undergoing inpatient treatment for COVID-19 at the National Military Medical Clinical Centre "Main Military Clinical Hospital" from 2020 to 2021 were analysed. There were 2 groups according to the severity of COVID-19 (severe course, n = 37, non-severe, n = 109). We also proposed to participate in questioning a group of doctors who were involved in the treatment of patients with COVID-19. Research methods: systemic approach, medical-statistical, questioning, structural-logical analysis, clinical, laboratory and instrumental methods.

There was carried out an analysis of the data, which included the following indicators: gender, age, complaints on admission, existing comorbidities, COVID-19 severity, maximum grade of respiratory failure, laboratory and instrumental examination data, and treatment outcomes. The data were processed using EZR, Medstat software.

Results

In accordance with the study objective, we conducted a retrospective analysis of the in-patient medical charts of the COVID-19 patients who were treated at the National Military Medical Clinical Centre "Main Military Clinical Hospital". All patients with COVID-19 were divided into two groups: group I consisted of patients with mild to moderate disease course, group II comprised patients with severe COVID-19. The inclusion criterion was a verified COVID-19 diagnosis based on clinic-anamnestic, laboratory and instrumental tests, particularly a positive test for SARS-CoV-2 RNA (by PCR) or a rapid test for SARS-CoV-2 antigen.

We compared the prevalence of obesity based on the analysis of body mass index indicated in the initial examination, and analysed laboratory parameters, including glycaemia levels prior to initiating glucocorticoid therapy.

The depersonalised patient data were used in the medical chart analysis. The following parameters were included into the patient data analysis card: gender, age (number of years), biochemical blood analysis results on admission (baseline): creatinine, C-reactive protein; body mass index, existing overweight, obesity, diabetes mellitus (DM), chronic kidney disease (with estimated GFR on admission (eGFR CKD-EPI), the maximum creatinine level (μmol/L), the minimum estimated GFR (eGFR CKD-EPI), creatinine elevation and baseline eGFR decrease by 50% or more (acute kidney injury), the severity of COVID-19 (severe, non-severe course).

The prevalence of glycaemic abnormalities related to COVID-19 severity is presented in Table 1.

The results of laboratory tests in the groups were analysed as well (Table 2).

In our previous study (Gruzieva & Antonyuk, 2023) we reported high incidence of AKI in a group with poor outcomes reaching 46.3 % (CI 95% 31–62%), $p < 0.001$ and suggested to protect susceptible groups at high risk of severe COVID-19 as it had "strategic importance in preventing high mortality rates in population regardless of age".

We performed questioning among doctors who were involved in medical care during pandemic and treated patients both in the hospital and out patiently (n = 31; 11 males and 20 females). Age structure of responders on the time of COVID-19 pandemics (2020-2022) is presented below (Fig. 1) and represents all age groups with slight shift to the younger groups. It was due to severe challenges for doctors according to their individual health risks and larger involvement of older

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Table 1. Prevalence of glycaemic disorders in the study groups

Clinical and laboratory data	Control group I (n = 109)	Study group II (n = 37)	Wilcoxon rank sum test
Age, years Me (QI – QIII)	39 (21□49)	79 (67□83)	p < 0.001*
BMI, kg/m^2 Me (QI – QIII)	25.1 (22.65□29.31)	27.75 (25.53□32.98)	p < 0.001*
Glucose, mmol/L Me (QI – QIII)	5.18 (4.7□5.94)	7.17 (5.9□8.76)	p < 0.001*
Glucose more than 6 mmol/L, % (CI 95%)	18.3 (11.6-26.2)	73 (57.2-86.2)	p < 0.001*
Glucose more than 7 mmol/L, % (CI 95%)	12.8 (7.2-19.8)	56.8 (40.2-72.6)	p < 0.001*
Glucose more than 8 mmol/L, % (CI 95%)	5.5 (2-10.6)	35.1 (20.3-51.6)	p < 0.001*
BMI more than 25 kg/m^2, % (CI 95%)	51.5 (41.7-61.3) N = 101	89.2 (76.9-97.2) N = 37	p < 0.001*
Obesity, % (CI 95%)	19.8 (12.6-28.2) N = 101	40.5 (25-57.1) N = 37	p = 0.031*

Note: * – p < 0.05 statistically significant difference between groups

Table 2. Laboratory parameters in the groups

Clinical and laboratory data	Control group I (n = 109)	Study group II (n = 37)	Wilcoxon rank sum test
Creatinine, μmol/L Me (QI – QIII)	82.85 (73.9□95.4)	103.5 (87.6□128.5) N = 37	p < 0.001*
Maximum creatinine level, μmol/L Me (QI – QIII)	82.85 (73.9□95.4)	195.6 (153.8□279.2)	p < 0.001*
Creatinine elevation rate over time Me (QI – QIII)	–	22 (57.9%)	–
Urea, mmol/L Me (QI – QIII)	4.8 (3.98□6) N = 88	9.46 (7.26□13.87) N = 33	p < 0.001*
C-reactive protein, mg/L Me (QI – QIII)	4.32 (0.68□30.02) N = 95	92 (46.17□163.24) N = 31	p < 0.001*

Note: * – p < 0.05 statistically significant difference between groups

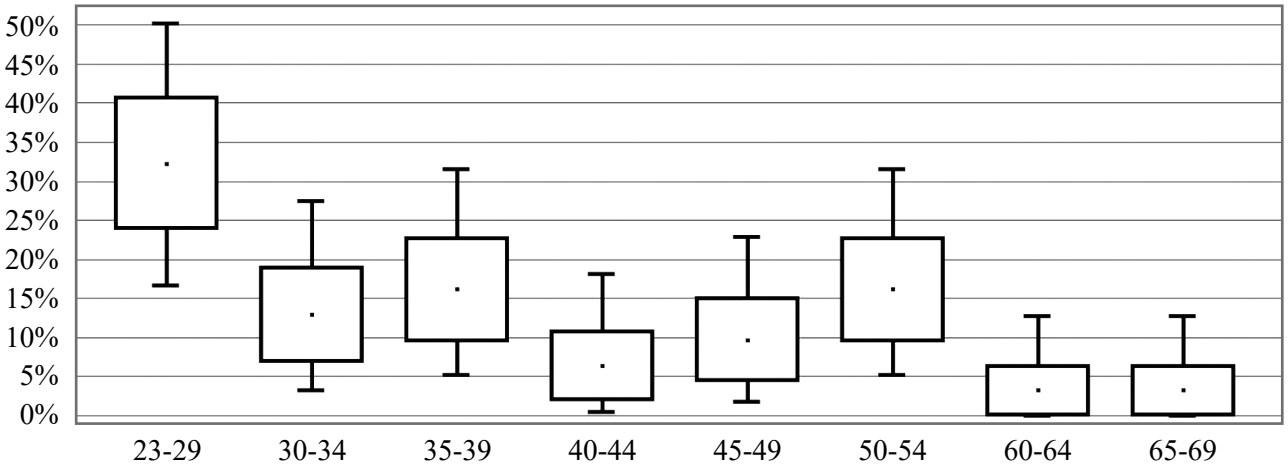

Fig. 1. Age structure of responders

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groups in specialized health care (radiosurgery, oncology, endocrinology, cardiology etc).

The doctors practised during COVID-19 pandemics in the outpatient clinic, inpatient and combined both practice variants (29%, 35,5% and 35,5% respectively). We asked to admit what type of facility the correspondents represented. We found that 48,4% worked in the state clinics of Ministry of Health, 32.2% chose private clinics, and 16.1% worked in the facility of other ministries (Ministry of Defence, Internal Affairs etc.). On the other hand, we see a large spectrum of medical specialties in colleagues who were involved in medical care on combating COVID-19 (Fig. 2). We defined such specialty groups: general practice (GP), internal medicine (IM), infectious diseases (IF), other therapeutic specialties (rheumatology, gastroenterology, endocrinology etc.), other surgical specialties (othorhynolaringology, traumatology etc.), anesthesiologist.

In Figure 3, a range of doctoral experience corresponds to the J-shape. It is considerably important to communicate with older collegues with longer medical experience for best treatment results.

The results confirm the same explanation on the presence of the doctoral category (from specialist (without category) to the high one (Fig. 4).

We asked to define correctly the criteria of obesity and 3rd degree of obesity and found

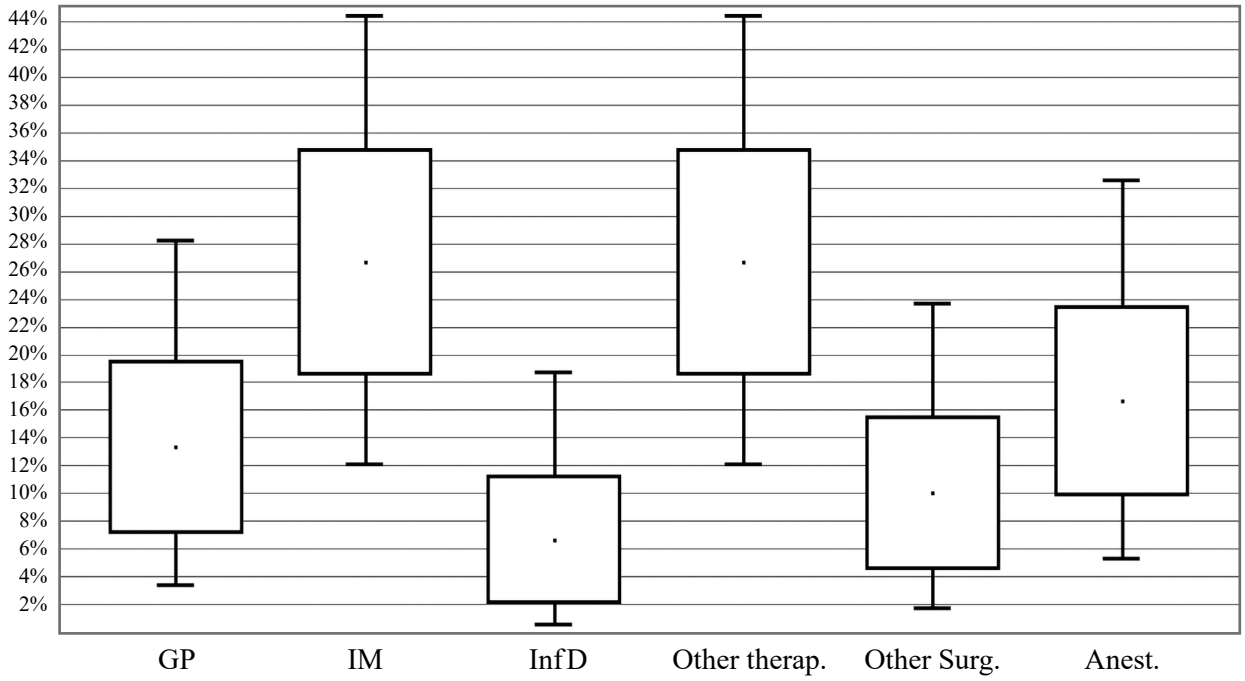

Fig. 2. Doctoral specialty groups

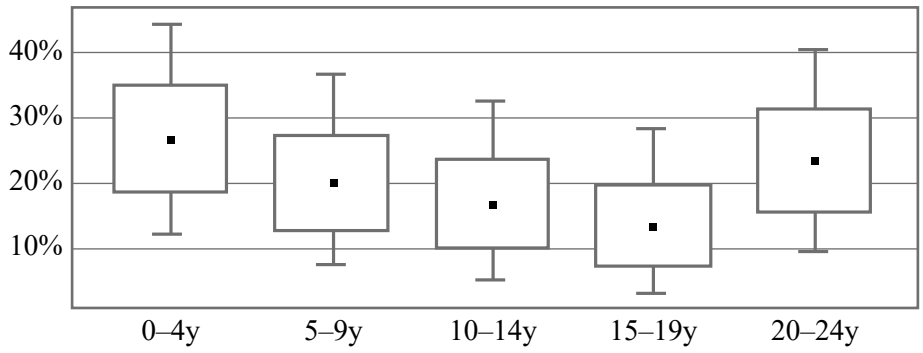

Fig. 3. A range of doctoral experience

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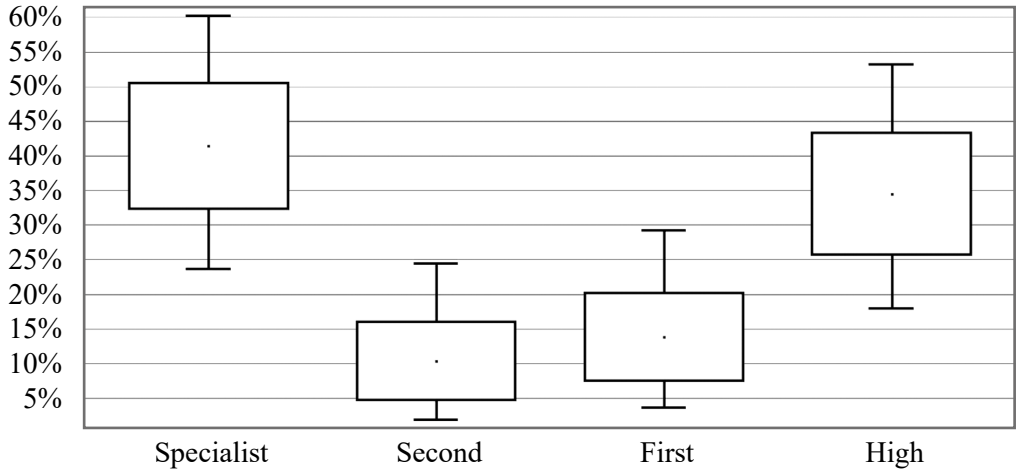

Fig. 4. A range of doctoral category

that only 66.7% and 73.3% of doctors answered correctly. However, most responders (about 90,3%) admitted the significance of body weight modification in obese patients. About 81% of responders suggested focusing on principles of preventive admission, 48.4% answered 'likely' and 32.2% – 'very likely'. As a hospital stay is usually quite expensive medical care and in the time of pandemics, hospital beds were overused, it is important to find other principles of prevention. More then 90% thought that the vaccination was 'effective' or 'effective enough' in preventing poor outcomes of COVID-19, according to the scientific data. The doctors were also concerned about the patients' smoking; 100% of respondents would very likely (93.5%) and likely (6.5%) suggest patients give up. Almost 97% confirmed that recommend patients to improve their phisical activity (very likely and likely in 77.4% & 19.4% correspondingly). Most of doctors assesed medical care during pandemic as 'satisfactory' (77.4%), while 'enough good' only 16.1% and 'unsatisfactory' 6.5% with average score 3.1 from 5 possible. That fact caused us to analyse the resons of such conclusion of our collegues.

Table 3. Attitude to the significance of challenges in health care during pandemics

Challenges in clinical practice	Scores, %					
	5	**4**	**3**	**2**	**1**	**0**
Primary outpatient visit with respiratory failure (SpO2 lower 92% on air) (n = 29), %	27,6	24,1	6,9	13,8	20,7	6,9
Postponed hospitalization due to the time of receiving PCR result (n = 30), %	33,3	26,7	13,3	10	3,3	10
Late hospitalization recommended by GP (n = 30), %	26,7	26,7	16,7	3,3	20	6,7
Lack of information from the medical history on the presence of chronic non-communicable diseases (n = 30), %	33,3	26,7	13,3	10	10	6,7
Absence of preventive hospitalization options in patients of risk groups (n = 30), %	33,3	20	20	6,7	10	10
Patient neglect of recommended hospitalization (ineffective communication with a patient) (n = 30), %	16,7	30	20	10	20	3,3
Postponed planed surgery and/or examination (gastroscopy, endovascular surgery, etc.) (n = 30), %	33,3	26,7	13,3	6,7	10	10

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Table 4. Suggested decissions on improvement of medical care for patients with high cardiometabolic risks

Suggested decissions on improvement of medical care for patients with high cardiometabolic risks	Scores, %					
	5	4	3	2	1	0
Financial improvement of health care due to further reforming of the health care system on the basis of government insurance system (n = 30), %	33,3	30	20	10	6,7	0
Optimization of comorbid pathology control (n = 30), %	15	17	28	0	0	0
Patient involvement in achieving treatment results (health promotion) (n = 30), %	63,3	26,7	6,7	3,3	0	0
Informing patients on the necessity of stopping tobacco smoking (n = 30), %	60	20	3,3	13,3	0	3,3
Informing patients on the obesity influence on the course of CVD and diabetes (n = 30), %	70	23,3	3,3	0	3,3	0
Personalized approach to the treatment tactics and determining of risk groups (n = 30), %	60	20	20	0	0	0

In Table 3, we resumed significance of challenges in clinical practice faced by the doctors.

We analysed the attitude of respondents to the different approaches on improvement of medical care for patients with high cardiometabolic risks (Table 4).

We found significant correlation test results between the following parameters: strong positive dirrect correlation between age and experience (Rxy = 0,954) and presence of doctoral category (Rxy = 0,839), moderate negative correlation between age and positive attitude to vaccine effectiveness (Rxy = –0,337), mild negative correlation of age with correct answers on the definition of obesity (Rxy = –0,326) and the grade 3rd obesity (Rxy = –0,239), mild positive correlation of age with attitude to the preventive hospitalization (Rxy = 0,150) and improving of phisical activity (Rxy = 0,103). Young collegues more likely thought positively on the quality of health care during COVID-19 pandemics (Rxy = –0,285) than their older collegues. Doctors who practiced in hospital or combined both varients of clinical practice more likely assessed positive influence of preventive hospitalisation (Rxy = 0,212) and more often answered correctly defining criteria of obesity and it's degree (Rxy 0,206 and Rxy 0,118 correspondingly). It could be explaned as more likely being concerned on the level of body mass index and hospitalization outcomes. Those who thought on the necessity of preventive hospitalisation were older (Rxy = 0,150), correctly defined obesity (Rxy = 0,311) and more likely suggest vaccination to be effective in preventing poor outcomes (Rxy = 0,152).

Discussion

Acute kidney diseases and disorders (AKD) include renal abnormalities and changes in kidney structure present for < 3 months, while AKI is defined as a type of AKD, with onset of development within 7 days and it could be caused by multiple different reasons (Gabarre, 2020). Noticeably, AKD and AKI may happen in people with previous chronic non-communicable diseases and may lead to the higher rates of morbidity and mortality. AKI is defined by a sudden loss of excretory kidney function, based on KDIGO (Kidney Disease Improving Global Outcomes) criteria in patients with elevated baseline serum creatinine (SCr). Stage 1 – increase in SCr by 0.3 mg/dl within 48 hours or a 1.5 to 1.9 times increase in SCr from baseline within 7 days; stage 2–2.9 times increase in serum creatinine within 7 days; stage 3–3 times or more increase in SCr within 7 days or initiation of the renal replacement therapy (RRT) (Kellum, 2011).

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It was suggested to analyse AKI not only in the severity of the disease (on the individual level), but also in the global context, comparing health systems in countries with different levels of income (Wainstein M., 2023). The authors divided countries by levels of income and compared AKI incidence during hospital stay. In their observational study patients with COVID-19 from 49 countries across all income levels (n = 32210) who were admitted to an intensive care unit during their hospital stay. They showed that among patients with COVID-19 admitted to the intensive care unit, AKI incidence was highest in patients in low and lower-middle-income countries (LLMIC), followed by patients in upper-middle-income countries (UMIC) and high-income countries (HIC) (53%, 38%, and 30%, respectively). The huge problem was that the assessment of dialysis rates was lowest among patients with AKI from LLMIC and highest among those from HIC (27% vs. 45%). The authors concluded that patients with AKI in LLMIC had the most significant proportion of community-acquired AKI (CA-AKI) and the highest rate of in-hospital death (79% vs. 54% in HIC and 66% in UMIC), and even after adjusting for disease severity, the association between AKI and in-hospital death rate persisted in LLMIC.

Our findings indicate a high prevalence of metabolic disorders in the group of patients hospitalised with severe COVID-19 (BMI over 25 kg/m2 had 89.2% while in compared group – 51.5%, $p < 0.001$). The prevalence of obesity in the severe COVID-19 group was twice as high (19.8% vs 40.5%) as in the non-severe group ($p = 0.031$).

There was a high prevalence of hyperglycaemia in the first 24 hours of hospital admission (baseline), which was seen in almost three-quarters of all cases. This may be partly explained by stress hyperglycaemia, but also by the direct effect of SARS-CoV-2 on the pancreas. A statistically significant difference was found between the median glycaemic levels in the groups, 5.18 mmol/L and 7.17 mmol/L, respectively ($p < 0.001$).

Conclusions

A high prevalence of diabetes and hyperglycemia in patients with a severe coronavirus disease course was revealed, requiring risk management at the individual and population levels. Health promotion of decreasing weight, giving up smoking, and regular physical activity could be helpful in improvement of individual health. We propose to identify obesity as an important independent risk factor which helps in decision-making on the hospitalisation of COVID-19 patients before the severe respiratory insufficiency starts.

66.7% and 73.3% of doctors answered correctly, defining the criteria of obesity and 3rd degree of obesity. Most responders (about 90,3%) admitted the significance of body weight modification in obese patients.

Our findings indicate a high prevalence of metabolic disorders in the group of patients hospitalised with severe COVID-19 (BMI over 25 kg/m^2 had 89.2% while in compared group – 51.5%, $p < 0.001$). The prevalence of obesity in the severe COVID-19 group was twice as high (19.8% vs 40.5%) as in the non-severe group ($p = 0.031$).

Initial assessments of the clinical and laboratory data are extremely important as it could be necessary to achieve compensation of diabetes before onset of COVID-19.

Significant difference in baseline creatinine ($p < 0.001$) and in maximum serum creatinine in the groups was found (82.85 (73.9□95.4) vs 195.6 (153.8□279.2) correspondingly, $p < 0.001$).

We observed increase in serum creatinine in 57.9% of patients with severe COVID-19 ($p < 0.001$). Rapid increase in serum creatinine could be associated with acute kidney injury and may need urgent renal replacement therapy while in the case of not enough resources it could be challengeable and causing poor outcomes.

In the time of pandemics, hospital beds were overused, it is important to find effective principles of prevention (giving up of smoking, improving physical activity, etc.), however, about 81% of responders suggested focusing on principles of preventive admission.

Most of doctors assessed medical care during pandemic as ‘satisfactory’ (77.4%), while ‘enough good’ only 16.1% and ‘unsatisfactory’ 6.5% with average score 3.1 from 5 possible.

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Authors have no conflict of interest to declare.

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A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of article

REFERENCES

Cariou, B., Hadjadj, S., Wargny, M., Pichelin, M., Al-Salameh, A., Allix, I., Amadou, C., Arnault, G., Baudoux, F., Bauduceau, B., Borot, S., Bourgeon-Ghittori, M., Bourron, O., Boutoille, D., Cazenave-Roblot, F., Chaumeil, C., Cosson, E., Coudol, S., Darmon, P., Disse, E., … CORONADO investigators (2020). Phenotypic characteristics and prognosis of inpatients with COVID-19 and diabetes: the CORONADO study. Diabetologia, 63(8), 1500–1515. https://doi.org/10.1007/s00125-020-05180-x

Cinti, F., & Cinti, S. (2022). The Endocrine Adipose Organ: A System Playing a Central Role in COVID-19. Cells, 11(13), 2109. https://doi.org/10.3390/cells11132109

Gabarre, P., Dumas, G., Dupont, T., Darmon, M., Azoulay, E., & Zafrani, L. (2020). Acute kidney injury in critically ill patients with COVID-19. Intensive care medicine, 46(7), 1339–1348. https://doi.org/10.1007/s00134-020-06153-9

Gruzieva, T., & Antonyuk, O. (2023). Analysis of risk factors for severe COVID-19. KIDNEYS, 12(1), 39–45. https://doi.org/10.22141/2307-1257.12.1.2023.393

Guarisco, G., & Leonetti, F. (2021). Covid-19 and diabesity: when a pandemia cross another pandemia. Eating and weight disorders: EWD, 26(5), 1283–1286. https://doi.org/10.1007/s40519-020-00958-9

Halushko, O. A., Trishchynska, M. A., Povietkina, T. M., & Boliuk, M. V. (2020). DIABETES MELLITUS IN COVID-19 PATIENTS: VERDICT OR NOT?. Wiadomosci lekarskie (Warsaw, Poland: 1960), 73(12 cz 1), 2672–2676.

Holman, N., Knighton, P., Kar, P., O'Keefe, J., Curley, M., Weaver, A., Barron, E., Bakhai, C., Khunti, K., Wareham, N. J., Sattar, N., Young, B., & Valabhji, J. (2020). Risk factors for COVID-19-related mortality in people with type 1 and type 2 diabetes in England: a population-based cohort study. The Lancet. Diabetes & endocrinology, 8(10), 823–833. https://doi.org/10.1016/S2213-8587(20)30271-0

Huang, I., Lim, M. A., & Pranata, R. (2020). Diabetes mellitus is associated with increased mortality and severity of disease in COVID-19 pneumonia – A systematic review, meta-analysis, and meta-regression. Diabetes & metabolic syndrome, 14(4), 395–403. https://doi.org/10.1016/j.dsx.2020.04.018

Kellum, J. A., Lameire, N., Aspelin, P., Barsoum, R. S., Burdmann, E. A., Goldstein, S. L., Herzog, C. A., Joannidis, M., Kribben, A., Levey, A. S., MacLeod, A. M., Mehta, R. L., Murray, P. T., Naicker, S., Opal, S. M., Schaefer, F., Schetz, M., & Uchino, S. (2012). Kidney disease: Improving global outcomes (KDIGO) acute kidney injury work group. KDIGO clinical practice guideline for acute kidney injury. Kidney International Supplements, 2(1), 1-138. https://doi.org/10.1038/kisup.2012.1

Khalangot, M., Sheichenko, N., Gurianov, V., Vlasenko, V., Kurinna, Y., Samson, O., & Tronko, M. (2022). Relationship between hyperglycemia, waist circumference, and the course of COVID-19: Mortality risk assessment. Experimental biology and medicine (Maywood, N.J.), 247(3), 200–206. https://doi.org/10.1177/15353702211054452

Lim, S., Shin, S. M., Nam, G. E., Jung, C. H., & Koo, B. K. (2020). Proper Management of People with Obesity during the COVID-19 Pandemic. Journal of obesity & metabolic syndrome, 29(2), 84–98. https://doi.org/10.7570/jomes20056

Liu, Z., Li, J., Huang, J., Guo, L., Gao, R., Luo, K., Zeng, G., Zhang, T., Yi, M., Huang, Y., Chen, J., Yang, Y., & Wu, X. (2020). Association Between Diabetes and COVID-19: A Retrospective Observational Study With a Large Sample of 1,880 Cases in Leishenshan Hospital, Wuhan. Frontiers in endocrinology, 11, 478. https://doi.org/10.3389/fendo.2020.00478

Mankovsky, B., & Halushko, O. (2020). COVID-19 IN DIABETES PATIENTS IN UKRAINE: LESSONS FOR DOCTORS AND PATIENTS. Georgian medical news, (301), 105–112.

Menez, S., Coca, S. G., Moledina, D. G., Wen, Y., Chan, L., Thiessen-Philbrook, H., Obeid, W., Garibaldi, B. T., Azeloglu, E. U., Ugwuowo, U., Sperati, C. J., Arend, L. J., Rosenberg, A. Z., Kaushal, M., Jain, S., Wilson, F. P., Parikh, C. R., & TRIKIC Consortium (2023). Evaluation of Plasma Biomarkers to Predict Major Adverse Kidney Events in Hospitalized Patients With COVID-19. American journal of kidney diseases: the official journal of the National Kidney Foundation, S0272-6386(23)00648-0. Advance online publication. https://doi.org/10.1053/j.ajkd.2023.03.010

ISSN 2786-6661
eISSN 2786-667X

Morys, F., & Dagher, A. (2021). Poor Metabolic Health Increases COVID-19-Related Mortality in the UK Biobank Sample. Frontiers in endocrinology, 12, 652765. https://doi.org/10.3389/fendo.2021.652765

Ng, W. H., Tipih, T., Makoah, N. A., Vermeulen, J. G., Goedhals, D., Sempa, J. B., Burt, F. J., Taylor, A., & Mahalingam, S. (2021). Comorbidities in SARS-CoV-2 Patients: a Systematic Review and Meta-Analysis. mBio, 12(1), e03647-20. https://doi.org/10.1128/mBio.03647-20

Richardson, S., Hirsch, J. S., Narasimhan, M., Crawford, J. M., McGinn, T., Davidson, K. W., the Northwell COVID-19 Research Consortium, Barnaby, D. P., Becker, L. B., Chelico, J. D., Cohen, S. L., Cookingham, J., Coppa, K., Diefenbach, M. A., Dominello, A. J., Duer-Hefele, J., Falzon, L., Gitlin, J., Hajizadeh, N., Harvin, T. G., … Zanos, T. P. (2020). Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. JAMA, 323(20), 2052–2059. https://doi.org/10.1001/jama.2020.6775

Saito, T., Yamaguchi, T., Kuroda, S., Kitai, T., Yonetsu, T., Kohsaka, S., Torii, S., Node, K., Matsumoto, S., Matsue, Y., & Kodama, T. (2022). Impact of body mass index on the outcome of Japanese patients with cardiovascular diseases and/or risk factors hospitalized with COVID-19 infection. Journal of cardiology, 79(4), 476–481. https://doi.org/10.1016/j.jjcc.2021.09.013

Wainstein, M., Spyrison, N., Dai, D., Ghadimi, M., Chávez-Iñiguez, J. S., Rizo-Topete, L., Citarella, B. W., Merson, L., Pole, J. D., Claure-Del Granado, R., Johnson, D. W., Shrapnel, S., & ISARIC Characterization Group (2023). Association of Country Income Level With the Characteristics and Outcomes of Critically Ill Patients Hospitalized With Acute Kidney Injury and COVID-19. Kidney international reports, 8(8), 1514–1530. Advance online publication. https://doi.org/10.1016/j.ekir.2023.05.015

Wang, J., Zhu, L., Liu, L., Yan, X., Xue, L., Huang, S., Zhang, B., Xu, T., Ji, F., Li, C., Ming, F., Zhao, Y., Cheng, J., Chen, K., Zhao, X. A., Sang, D., Guan, X., Chen, X., Yan, X., Zhang, Z., … Wu, C. (2022). Clinical features and prognosis of COVID-19 patients with metabolic syndrome: A multicenter, retrospective study. Medicina clinica (English ed.), 158(10), 458–465. https://doi.org/10.1016/j.medcle.2021.05.022

Аналіз особливостей перебігу COVID-19 у пацієнтів з метаболічними порушеннями

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Анотація: *ожиріння, діабет, серцево-судинна патологія, чоловіча стать і старший вік призводять до значимого погіршення перебігу COVID-19 і асоціювалися із ризиком гострого пошкодження нирок. Дослідження має на меті визначити основні напрямки покращення медичного обслуговування хворих на COVID-19 у пацієнтів із метаболічними порушеннями з акцентом на модифікації факторів ризику, аналіз ставлення лікарів до проблем ожиріння в контексті зміцнення здоров'я. Методи дослідження: системний підхід, медико-статистичний, анкетування, структурно-логічний аналіз, клінічні, лабораторні та інструментальні методи. Ми провели ретроспективний аналіз медичних документів хворих на COVID-19, які перебували на стаціонарному лікуванні в Національному військово-медичному клінічному центрі «Головний військовий клінічний госпіталь» (n = 146). Було виділено 2 групи за ступенем тяжкості COVID-19*

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(тяжкий перебіг, n = 37, нетяжкий – n = 109). Також ми запропонували взяти участь в опитуванні групі лікарів, які брали участь у лікуванні хворих на COVID-19. Результати. Виявлено високу поширеність цукрового діабету та гіперглікемії у пацієнтів із тяжким перебігом коронавірусної хвороби, що потребує управління ризиками як на індивідуальному, так і на популяційному рівнях. Відповідно до отриманих результатів, більшість лікарів були стурбовані проблемами ожиріння та пропонували звернути увагу на профілактичні стратегії щодо пацієнтів з неінфекційними захворюваннями. Початкова оцінка клінічних і лабораторних даних надзвичайно важлива, оскільки може знадобитися досягти компенсації діабету до появи COVID-19. Зміцнення здоров'я шляхом зниження ваги, відмова від куріння, регулярні фізичні навантаження можуть бути корисними у покращенні індивідуального здоров'я. Ми пропонуємо визначити ожиріння як важливий незалежний фактор ризику, який допомагає прийняти рішення про необхідність госпіталізації пацієнтів до початку тяжкої дихальної недостатності, викликаної SARS-CoV-2. Рекомендовано розглядати ожиріння як важливий незалежний фактор ризику, який може бути корисним у прийнятті рішення щодо доцільності госпіталізації з приводу COVID-19 до розвитку тяжкої дихальної недостатності. Вихідні рівні креатиніну мають бути аналізовані, оскільки раптове зростання рівня сироваткового креатиніну може бути пов'язане із гострим пошкодженням нирок, що може потребувати ургентної ниркової замісної терапії в умовах обмеженості ресурсів може бути серйозним викликом і визначати несприятливий прогноз.

Ключові слова: COVID-19; ускладнення; гостре пошкодження нирок; профілактика; ризик менеджмент; ожиріння; персоніфікована медицина.