

4TH-YEAR STUDENTS TRAINING TO PERFORM CARDIOPULMONARY RESUSCITATION IN PREPARATION FOR NURSING STAFF MEDICAL ACTIVITIES ACCREDITATION

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Nursing staff medical activities accreditation includes solving test and situational tasks and performing cardiopulmonary resuscitation (CPR) as one of the practical skills. The 4th-year students' training to CPR algorithm performance is carried out in 3 stages. The first stage is to assess students' knowledge of the CPR algorithm, the second stage comprises the analysis of the theoretical part, and the third stage is the students' exercise of CPR skills on an interactive simulator. In summary, the three-stage CPR training system for students to accreditation preparation is quite effective and allows improves the students' results in a short time significantly.

HEPATIC MANIFESTATION OF COVID-19 AND EFFECT OF L-CARNITINE ON COVID ASSOCIATED LIVER LESIONS

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Introduction. Coronaviruses are a family of viruses that are capable of causing respiratory diseases in various humans and animals [1,]. Due to such disease (COVID-19), WHO has declared a pandemic that has resulted in millions of deaths and hospitalizations worldwide. Recently, there has been some insight into the effects of COVID-19 on other organs. A number of studies have found that more than half of patients with COVID-19 may have different levels of liver damage [2].

The range of elevations in aspartate transaminase (AST) and alanine transaminase (ALT) is usually moderate (ie, <5 times the upper limit of normal); however, higher aminotransferase levels and severe acute hepatitis have also been reported [3]. The level of elevated AST levels is often higher than ALT, and these data have been associated with the severity of the disease [1]. According to the literature, AST and ALT increase more often than bilirubin or markers of cholestasis [4].

Covid-induced hepatitis is a new clinical syndrome that can be defined as “new benign transient hepatitis in patients with SARS-CoV-2, which is characterized by the following: gradual onset, increased AST and ALT levels, dilated sinusoids with lymphocytic infiltration of the liver parenchyma, non-obstructive jaundice, stable underlying liver disease and the absence of new radiological changes in the hepatobiliary system [1].

Undoubtedly, the current clinical data show that the incidence of liver dysfunction in COVID-19 ranges from 6 to 61%, which is mainly determined by abnormal ALT / AST levels. However, in most cases, there was a slight increase in the level of AST / ALT, accompanied by a slight increase in the level of bilirubin [4].

Although the incidence of liver damage was higher in patients with severe clinical manifestations of COVID-19 than in patients with mild severity, these differences were not statistically significant in all studies. In the treatment of covid-induced hepatitis, a number of different drugs and their combinations are currently being considered. One of the candidates for drugs in this area is L-carnitine.

Aim. 1. To determine the incidence of covid-induced hepatitis among patients with SARS-COV2 infection complicated by bilateral pneumonia.

2. To assess the dynamics of laboratory parameters in patients with covid-induced hepatitis using L-carnitine.

Materials and methods. The study included 160 patients with SARS-COV2 infection, complicated by out-of-hospital bilateral pneumonia, who were consistently undergoing planned treatment at the Grodno University Clinic in the period November - December 2020, aged 42 to 74 years (Me = 64 years). Among them, 51% are women and 49% are men.

In all the patients, the CT method was used to diagnosed bilateral polysegmental pneumonia with a lung lesion of stage CT 2.

Inclusion criteria: Patients not taking any medications prior to hospitalization.

Exclusion criteria: alcohol abuse, history of viral hepatitis, hereditary and autoimmune liver diseases, cancer. Written informed consent was obtained from all patients to participate in the study. Prior to treatment, all patients were measured for cytotoxicity markers (ALT, AST), serum bilirubin and its fractions, markers of cholestasis (alkaline phosphatase (ALP), gamma-glutamyl transpeptidase (GGTP). serum indicators of liver damage, while in all cases there was an increase in the level of aminotransferases. This group included 61 patients, 31 (51%) men, 30 (49%) women. Further from this group, 30 patients were randomly selected who along with the ongoing therapy of the underlying disease, additionally received daily intravenous infusions of L-carnitine at a dose of 1 g / day, previously diluted in 100 ml of saline. The duration of each infusion was 10 minutes. The duration of therapy was 10 days. In the case of L-carnitine, the drug Almiba (Grand Medical AG., Switzerland) was used - a solution for injection 1 g / 5 ml. The remaining 24 patients were included in the control group. At the end of treatment, laboratory tests were repeated in all patients.

Research results. Laboratory changes in liver function were detected in 61 (38%) of 160 studied patients with SARS-COV2 infection. The characteristics of laboratory parameters in patients with liver damage are presented in table. 1.

Table 1. – Characteristics of laboratory parameters of liver damage, n=54

Indicator	Lq - Uq	Me	Number of patients with excess of the norm
ALT, u / l	81-299	144	53
AST, U / l	71-261	168	57
ALP, U / l	36-129	88	7
GGTP, U / l	22-111	65	6
Total. bilirubin, $\mu\text{mol/l}$	9-25	16	4

Table 1 shows that in the overwhelming majority of cases, patients showed an increase in the levels of aminotransferases, which may indicate a predominantly cytolytic nature of liver damage. Among all 54 patients, there was a 2-7-fold increase in the level of aminotransferases, which traditionally corresponds to hepatitis with minimal or moderate activity. Changes in markers of cholestasis and bilirubin were minimal and were detected in isolated cases. Clinical manifestations from the hepatobiliary system were absent in all patients.

Against the background of the treatment, patients receiving Almiba showed positive dynamics in the form of a decrease in the level of hepatic transaminases. From the data presented in table 2, it can be seen that in the group of patients on the background of treatment with Almiba, a decrease in the median of AST and ALT levels by 3-4 times is observed. While in the control group after treatment the levels of AST and ALT decreased to a lesser extent. The use of L-carnitine did not significantly affect the dynamics of other liver enzymes.

Table 2. – Dynamics of indicators of liver damage before and after treatment

Indicator	Study group, n=30		Control group, n=24	
	Before treatment, Lq - Uq, Me	After treatment, Lq - Uq, Me	Before treatment, Lq - Uq, Me	After treatment, Lq - Uq, Me
ALT, U / L	91-296, 146	36-92, 54	88-294, 148	34-128, 88
AST, U / l	73-261, 161	25-86, 44	76-252, 164	39-103, 71
ALP, U / l	37-121, 89	31-113, 73	38-123, 85	36-109, 78
GGTP, U / l	23-102, 64	21-89, 53	21-105, 62	20-101, 51
Total bilirubin, $\mu\text{mol/l}$	9-23, 15	9-22, 14	9-24, 16	8-21, 12

Conclusions. 1. Against the background of the use of the drug L-carnitine at a dose of 1 g / day as part of the basic therapy in patients with SARS-COV2 infection, an improvement in the indicators of the functional state of the liver is observed, which is manifested by a decrease in the activity of the cytolytic syndrome.

2. L-carnitine is well tolerated by patients and has no side effects, which allows it to be recommended for the treatment of covid-associated liver lesions.

Discussion. Our study has shown that patients hospitalized with SARS-CoV-2 infection complicated by out-of-hospital bilateral pneumonia have a high incidence of liver damage, which is manifested by an increase in the level of hepatic transaminases. Against the background of the use of L-carnitine, a faster and more pronounced decrease in indicators of cytolytic liver damage is achieved. Thus, the use of L-carnitine can be used in the complex therapy of patients with coronavirus infection with concomitant liver damage, as well as with a preventive purpose when prescribing hepatotoxic drugs.

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RISK FACTORS OF THE PROGRESSION OF CHRONIC KIDNEY DISEASE IN PATIENTS WITH DIABETES MELLITUS

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Introduction. Diabetes mellitus is the one of the important cause of chronic kidney disease. Since the prevalence of renal damage in the presence of diabetes mellitus is increasing, it is necessary to closely monitor risk factors and early correction of them. [1, 2]

Aim: is to identify risk factors of the progression of CKD in patients with diabetes mellitus.

Materials and methods. Study involved 16 patients with mean age of 56 (3 male and 13 female). Mean duration of diabetes in these patients was 8 years. All patients were examined clinically and laboratory (glycated haemoglobin, haemoglobin, albumin in urine, creatinine, GFR, blood pressure, BMI, cholesterol profile).

The diagnosis was confirmed by presenting of diagnostic criteria. GFR of all the patients was calculated by MDRD calculator using age, sex and creatinine and race.