



in COPD stimulates the production of a large number of inflammatory mediators, among which leukotrienes play a significant role, in particular, leukotriene B₄ (LTB₄) and thromboxanes (Tx). The investigation of the role of eicosanoids - important mediators of the inflammatory cascade in the progression of COPD, combined with CHD, as well as the search for effective ways of influencing them, will increase the results of treatment and the quality of life of patients with comorbidity of COPD and CHD.

The purpose of the study was to investigate the characteristics of the content of eicosanoids - leukotriene B₄ and thromboxane A₂ (by stable metabolite B₂) in the blood serum and urine of patients with COPD combined with CHD.

There were investigated 37 patients with exacerbation of COPD (clinical group B, GOLD II) associated with CHD – the main group, 27 patients with exacerbation of COPD (Ist comparison group) and 30 patients with CHD, stable angina pectoris (IInd comparison group). Levels of TxB₂ and LTB₄ in the blood serum and urine were examined in all patients and 32 healthy volunteers, using certified in Ukraine reagents TxB₂ and LTB₄ ELISA kit (Enzo Life Sciences, USA) by the method of enzyme immunoassay.

The concentration of TxB₂ in the blood serum reached (3382.3 ± 290.8) pg/ml in the patients of the primary group, exceeding the average level of healthy volunteers by 22.2 times (p <0.001), the same parameter of patients with exacerbation of COPD without CHD by 2.2 times (p <0.01) and by 1.4 times (p <0.05) in patients with CHD. In patients from the primary group, the serum LTB₄ content was the highest among all examined patients, reaching (6678.0 ± 375.4) pg/ml and exceeding the norm by 20.3 times (p <0.001). Evidently, systemic inflammation in COPD, combined with inflammatory manifestations in CHD, provided maximum concentration of this eicosanoid in the blood serum. The concentration of TxB₂ in the blood serum of patients from the Ist comparison group was the lowest among all examined patients, however, it exceeded the reference norm by 10 times (p <0,001).

Thus, in the blood serum of patients with COPD associated with CHD, the highest concentrations of LTB₄ and TxB₂ were marked, compared to patients with COPD without CHD and with CHD without COPD that was accompanied by increasing of their excretion with urine. The strength and direction of correlation links between concentrations of these eicosanoids in blood serum and indices of bronchial patency indicate their negative influence at bronchial patency of patients with a combination of COPD and CHD. Correlations between concentrations of LTB₄ and TxB₂ in the blood serum of patients with combined pathology confirm their mutually reinforcing effect to systemic inflammation according to their biological actions.

Sluhenska R.V.

THE PHYSICAL CULTURE AND HEALTH TECHNOLOGIES USE DURING PHYSICAL EDUCATION CLASSES FOR STUDENTS OF HIGHER EDUCATIONAL ESTABLISHMENT

*Department of Internal Medicine, Physical Rehabilitation and Sports Medicine
Higher State Educational Institution of Ukraine
"Bukovinian State Medical University"*

The systems of physical education teaching for students at higher educational institutions of Ukraine testifies that scientific principles of using very attractive modern highly effective physical culture technologies are not sufficiently developed in modern theory and physical education method.

The physical education traditional system turns out to be more effective at higher educational institutions (schools), as it is provided with gyms, specialized equipment. The program may be valid with the absence of such conditions, but physical education teachers shouldn't carry all the weight of its development on the proposed standards in the program, that is, actually transfer the burden of responsibility for the effectiveness of physical education system from themselves to students.

It is necessary to indicate (choose) kind of physical exercises during optimization of physical education practical classes, using physical culture and health technologies, and then, according to the above mentioned, focus on such important characteristics as time and features of student contingent. Then it is substantial to select forms and methods of physical culture and health technologies, taking into account presence or absence of sports equipment and musical accompaniment, the rate of exercise execution, the amount of training load, periodicity.

Therefore, physical education practical classes for students at the higher educational institution (school) which are optimized as recreational lessons with using physical training and health technologies are based on the laws of training motor activities and physical qualities development of the youth, peculiarities of physical education method of student contingent. Such classes comply with basic principles of physical education. Compulsory pedagogical control and physical qualities development monitoring, physical exercises diversity use from all directions of physical education and health technologies.

Slyvka N.O., Plesh I.A., Boreiko L.D., Makarova O.V.

DIAGNOSTIC MARKERS OF HEPATORENAL SYNDROME

*Department of Patients Care and Higher Nursing Education
Higher State Educational Establishment of Ukraine
"Bukovinian State Medical University"*

Hepatorenal syndrome (HRS) is a common complication in patients with alcohol liver cirrhosis (ALC) and it is associates with higher mortality in proportion to progressive HRS severity. However, the most common indicator of renal function, serum creatinine (Scr), may be an unreliable surrogate for glomerular filtration rate (GFR) due to the



impact of nonrenal determinants such as sex, race, age, constitution, and medications. Under condition of an acute drop in GFR, Scr is insensitive to small decrements in function, and its rise can lag actual kidney injury by several days. A more accurate means of rapid and accurate detecting changes in renal function early in the course of HRS that associate with outcomes may allow for more prompt initiation of therapy and improved outcomes.

Cystatin C (CysC) is a low-molecular-weight cysteine proteinase inhibitor synthesized at a constant rate by all nucleated cells. CysC is freely filtered by the glomerulus, almost completely reabsorbed and catabolized by the proximal tubule, and does not undergo secretion. CysC levels are less influenced by nonrenal factors than Scr and it has thus been proposed as a superior marker of glomerular filtration. In HRS, CysC rises more rapidly than Scr in some settings and has been shown to associate more strongly with outcomes. CysC performs better than Scr in early detection of HRS. CysC is associated with duration of HRS, need for renal replacement therapy, and short and long term mortality in HRS.

The research was aimed to investigate the use of cystatin C (CysC) for early detection of HRS in cirrhotics. CysC, a low-molecular-weight cysteine proteinase inhibitor, is a potentially more accurate marker of glomerular filtration. We conducted a prospective multicenter study in patients with ALC, comparing changes in CysC and Scr immediately following onset of HRS as predictors of a composite endpoint of dialysis or mortality. The results of our study confirmed, that CysC has demonstrated less variability between samples than Scr. Patients were stratified into four groups reflecting changes in Scr and cystatin: both unchanged or decreased 38 (36%) (Scr-/CysC-); only cystatin increased 25 (24%) (Scr-/CysC+); only Scr increased 15 (14%) (Scr+/CysC-); and both increased 28 (26%) (Scr+/CysC+). With Scr-/CysC- as the reference, in both instances where cystatin rose, Scr-/CysC+ and Scr+/CysC+, the primary outcome was significantly more frequent in multivariate analysis, and, respectively. However, when only Scr rose, outcomes were similar to the reference group. Summarizing all above, we can conclude, that changes in CysC levels early in HRS are more closely associated with eventual dialysis or mortality, than Scr and may allow more rapid identification of patients at risk for adverse outcomes.

Syrota B.V., Sydoruk L.P., Semianiv M.M., Yarynych Y.M., Sokolenko A.A.

PATOGENETIC SIGNIFICANCE OF ENTEROPATHETIC ESCHERICHIA COLI SEROVARIENTS IN THE ENTROCOLITIS CLINICAL FEATURES

Family Medicine Department

Higher State Educational Establishment of Ukraine

«Bukovinian State Medical University»

The aim of the study was to investigate the level and role of enteropathogenic intestinal Escherichia coli (E. coli) in the development of acute enterocolitis.

The taxonomic composition and microbiota population level in colon cavity content of the 95 patients with diarrheal escherichiosis and 87 healthy individuals were investigated. The age of the patients varied from 25 to 52 years (on the average 38,66±3,11 years). There were 62 women (65,26%) and 33 men (34,74%) among the examined. Colonies of microorganisms have been studied visually in the batch of fresh faeces (not more than 2 hours) of the colon cavity content by a microbiological method.

It was found that the acute diarrheal escherichiosis develops on the background of taxonomic composition and bacterial population violations of autochthonous obligate anaerobic gram-positive microbiota (Bifidobacterium and Lactobacillus), with a growing number of bacterial genera Bacteroides, Peptostreptococcus, Clostridium and facultative anaerobic and aerobic bacteria of the genus Escherichia, Proteus, Staphylococcus and fungi genus Candida, contamination and colonization of colon cavity conditionally pathogenic enterobacteria (Citrobacter, Enterobacter, Proteus, etc.) Peptococcus, fungi genus Candida, and the growth and proliferation of Enteropathogenic, Enteroinvasive, Enterohemorrhagic Escherichia coli and Hemolytic (E. coli Hly +) and lactose-negative E. coli.

Dysbacteriosis was diagnosed in 57,89% patients with acute enterocolitis, dysbiosis was diagnosed in 42,11%. Among them, 63,16% subjects had dysbiosis 3rd and 4th degrees, 36,84% – dysbiosis 1st and 2nd degrees ($\chi^2 = 13,16$; $p < 0,001$). Among healthy individuals persons with normal flora dominate over those with 1st and 2nd degrees dysbiosis (89,66% vs. 10,34%, $p < 0,001$).

Pathogenic agents of the acute diarrheal escherichiosis are pathogenic enterobacteria in 41,05% of patients, Enteropathogenic Escherichia coli in 29,45% of patients; Enteroinvasive Escherichia coli in 23,16% of patients and Enterohemorrhagic Escherichia coli in 11,58% of patients.

Clinical manifest of the acute diarrheal escherichiosis is polymorphic and depends on both the biology of the pathogenic agent and on the immunologic status of the macroorganism: in 90 (94,79%) of patients the disease was caused by one serovariant of E.coli whereas in 5 (5,26%) – the disease was due to association of enteropathogenic scherichias of 2 different taxons. The acute colienteritis was diagnosed in 57 (60,0%) patients, dysenteric type of the disease was diagnosed in 24 (25,26%), choleric type of colienteritis was diagnosed in 14 (14,74%) patients.