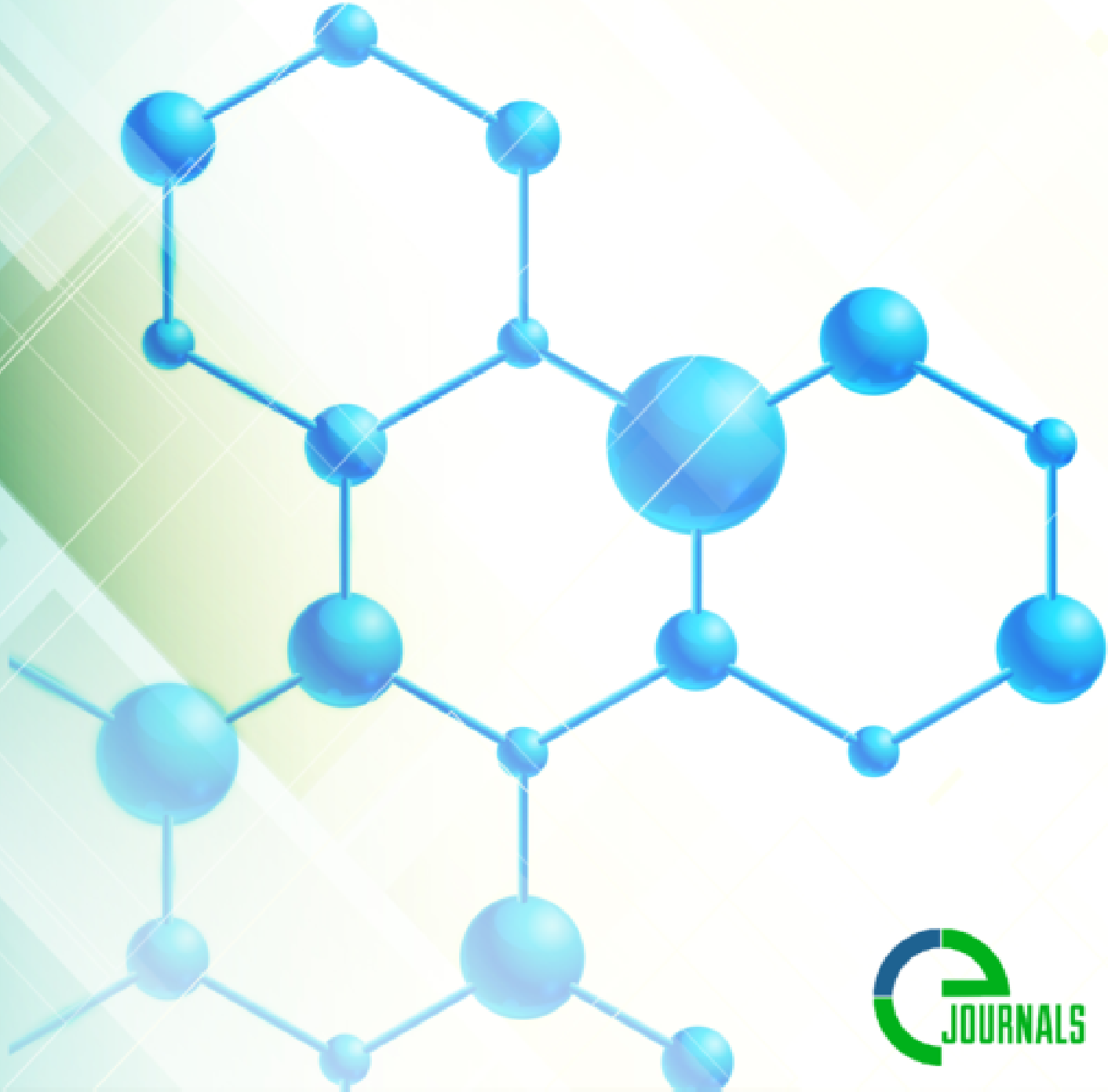
EUROPEAN JOURNAL OF

MOLECULAR MEDICINE



JOURNALS

European Journal of Molecular medicine

Volume 2, No.5, September 2022

Internet address: ttp://ejournals.id/index.php/EJMM/issue/archive
E-mail: info@ejournals.id
Published by ejournals PVT LTD
DOI prefix: 10.52325
Issued Bimonthly
Potsdamer Straße 170, 10784 Berlin, Germany

Requirements for the authors.

The manuscript authors must provide reliable results of the work done, as well as anobjective judgment on the significance of the study. The data underlying the work shouldbe presented accurately, without errors. The work should contain enough details andbibliographic references for possible reproduction. False or knowingly erroneous statementsare perceived as unethical behavior and unacceptable.

Authors should make sure that the original work is submitted and, if other authors'works or claims are used, provide appropriate bibliographic references or citations. Plagiarismcan exist in many forms - from representing someone else's work as copyright to copying orparaphrasing significant parts of another's work without attribution, as well as claimingone's rights to the results of another's research. Plagiarism in all forms constitutes unethicalacts and is unacceptable. Responsibility for plagiarism is entirely on the shoulders of theauthors.

Significant errors in published works. If the author detects significant errors or inaccuraciesin the publication, the author must inform the editor of the journal or the publisher aboutthis and interact with them in order to remove the publication as soon as possible or correcterrors. If the editor or publisher has received information from a third party that thepublication contains significant errors, the author must withdraw the work or correct theerrors as soon as possible.

CHIEF EDITOR

EDITORIAL BOARD

CHANGES IN BIOCHEMICAL BLOOD PARAMETERS IN WIDESPREAD APPENDICULAR PERITONITIS IN CHILDREN.

Davranov Bobir Latibovich
Candidate of Medical Sciences, Assistant of the Department of Pediatric Surgery No. 1 of Samarkand Medical University
Boymuradov Nemat Sadriddenovich
Associate Professor of the Department of Pediatric Surgery No. 1 of Samarkand Medical University
Yusupov Shukhrat Abdurasulovich
Doctor of Medical Sciences, Head of the Department of Pediatric Surgery No. 1 of Samarkand Medical University
Atakulov Jamshed Ostanokulovich
Professor of the Department of Pediatric Surgery No. 1 of Samarkand Medical University
Shamsiev Jamshid Azamatovich
Doctor of Medical Sciences, Professor,Head of the Department of Pediatric Surgery, Anesthesiology and Resuscitation, Faculty of Additional Professional Education, Samarkand Medical University

Abstract: In pediatric surgery, operations for acute appendicitis occupy a leading place in the structure of emergency abdominal operations and account for more than 70% of all surgical interventions.

Keywords: abdominal, pediatric surgery, intoxication, peritonitis, toxic shock, subcellular membranes.

In children, peritonitis against the background of destructive forms of appendicitis develops 8 times more often than in adults, and its generalized forms occur 2.5 times more often than local ones. In complicated cases against the background of endogenous intoxication (EI), accompanied by bacterial toxic shock, mortality reaches 25% (7,10,15 Masha). To date, it has been proven that a high mortality rate in widespread appendicular peritonitis (RAP) in children is mainly due to the development of various septic complications in them, the first symptoms of which are signs of endogenous intoxication.

At the same time, EI is a cascade, staged process capable of progression and generalization, due to a significant concentration of toxic substances in the bloodstream. The content of the latter exceeds the functionality of natural neutralization systems with subsequent damage to other organs and systems of the child's body. These damages, in turn, significantly modify the structural and functional state of cellular and subcellular membranes, causing a second wave of intoxication and closing the vicious circle of this critical state [43, p. 692-693; 94, p. 38-40; 110, p. 30-33diss]. Currently, a number of studies are being conducted to study the nature of EI in peritonitis, however, they are incompletely covered and in many ways contradictory, which requires their in-depth study.

Purpose of the study: to study the significance of the syndrome of endogenous intoxication in the pathogenesis of widespread appendicular peritonitis in children.

Material and methods of research: On the basis of the 2nd clinic of the Samarkand State Medical Institute, 402 children with RAP, as well as 40 children of the control group who did not have acute inflammatory and surgical diseases, were examined and treated. There were 248 (61.7%) boys, 154 (38.3%) girls, almost 2/3 of the examined

children with RAP were of school age. The cause of RAP was perforation of the appendix, the frequency of which was 88.6% and 82.6% in the main group and in the comparison group, respectively. The majority (92.8%) of patients were hospitalized up to 7 days from the onset of the disease. Along with this, peritonitis 8-10 days old was diagnosed in 24 children, and more than 10 days old - in 3 patients.

It should be especially noted that of the 207 patients included in this study with diffuse and 195 diffuse peritonitis, almost one third was diagnosed with toxic, and ? of the patients with terminal stage peritonitis, which is associated with a prognostically unfavorable course of this disease and once again confirms the relevance of the problem under consideration. In proportion to the foregoing , we determined the correlation between the stage of peritonitis and its prevalence: as the disease progressed from the reactive stage to the terminal one, the proportion of patients with a diffuse process increased from 5.1% to 52.3% against the background of a corresponding decrease in the proportion of patients with diffuse peritonitis from 72.9% to 27.1%.

All admitted patients underwent a generally accepted list of clinical studies: complete blood and urine analysis, blood grouping, biochemical blood tests, ECG, plain radiography of the chest and abdominal cavities according to indications, ultrasound sonography of the abdominal organs, immunological and microbiological studies.

The general blood test was carried out according to the standard method . The determination of malondialdehyde (MDA) in blood serum was carried out according to the method of ID Stalnaya et al. (1977); activity of superoxide dismutase (SOD) in the blood - according to the method of R. N. Mirsa, I. Fridovich in the modification of O. S. Brusov et al. (1976); activity of catalase in the blood - according to Korolyuk M.A. et al. (1988)..

The data obtained during the study were subjected to statistical processing on a Pentium-IV personal computer using the Microsoft Office Excel-2012 software package, including the use of built-in statistical processing functions.

Results and discussion. Analysis of our results showed a significant increase in the number of total leukocytes (by 1.7-2.3 times) relative to the control group in all patients with RAP, as well as a shift in the leukocyte formula to the left, and in a number of patients myelocytes and metamyelocytes were present. Given the statistically unreliable nature differences in the level of leukocytosis and morphological types of leukocytes in groups with diffuse and diffuse peritonitis, for further analysis we identified a general group of children with RAP. It is noteworthy that, despite the fact that the average values of the total number of leukocytes and the number of stab neutrophils were higher in the group of children with diffuse peritonitis, these differences were not statistically significant. Changes in the leukocyte formula during RAP were characterized by a neutrophilic-eosinopenic type, when, against the background of leukocytosis, neutrophilosis, a decrease in eosinophils, lymphocytes, and monocytes occurred, which is characteristic of purulent-septic processes.

The relative content of lymphocytes in children with diffuse and diffuse peritonitis was significantly lower than the control, however, did not depend on the form of RAP.

Evaluation of the level of SMP and MDA in the blood of children with RAP revealed their sharp increase in comparison with the control against the background of inhibition of the AOS enzymatic link, however, changes depending on the prevalence of peritonitis are unreliable (Table 2).

So, in RAP, regardless of the prevalence of peritonitis, there is a significant activation of the processes of degradation of biomolecules, which is accompanied by an almost twofold increase in the level of MDA and SMP against the background of inhibition of SOD activity by 2.5 times and catalase - by 1.8 times compared with the control.

First of all, the development of membrane-destructive processes occurs in the abdominal cavity, as well as in the blood. The accumulation of MDA and other LPO intermediates in the blood has a cytopathic effect on blood cells [14], which is reflected in changes in the properties of leukocyte membranes.

Evaluation of the level of SMP and MDA in the blood of children with RAP revealed their sharp increase in comparison with the control against the background of inhibition of the AOS enzymatic link, however, changes depending on the prevalence of peritonitis are unreliable (Table 2).

So, in RAP, regardless of the prevalence of peritonitis, there is a significant activation of the processes of degradation of biomolecules, which is accompanied by an almost twofold increase in the level of MDA and SMP against the background of inhibition of SOD activity by 2.5 times and catalase - by 1.8 times compared with the control.

First of all, the development of membrane-destructive processes occurs in the abdominal cavity, as well as in the blood. The accumulation of MDA and other LPO intermediates in the blood has a cytopathic effect on blood cells [14], which is reflected in changes in the properties of leukocyte membranes.

Table 2

The content of SMP, MDA and the activity of enzymes of the antioxidant system in the blood of children with RAP

Index	Control group, n =40	Diffuse peritonitis, n =38	Diffuse peritonitis, n =34	General group - RAP n=72
MDA, nmol/l	7.1 ±0.1	12.8 ±0.4*	13.6 ±0.1*	13.2 ±0.3*
SMP, UE	0.250 ±0.025	0.501 ±0.026*	0.581 ±0.090*	0.539 ±0.035*
SOD, U/mg protein	4.20±0.04	1.71±0.05*	1.68±0.01*	1.70±0.03*
CT, mkat/l	23.5±1.6	12.9±0.7*	13.9±0.2*	13.3±0.5*

Note: * significantly from the control group $p < 0.05$

Based on the results obtained, it can be stated that children with RAP have signs of a systemic inflammatory response syndrome, endogenous intoxication and oxidative stress, which indicate the presence of pronounced membrane-destructive processes in both diffuse and widespread peritonitis. This causes the inclusion of additional corrective measures in the complex of perioperative intensive care.

Progressive multiple accumulation of lipid peroxidation products in the body of children with peritonitis was manifested by an almost twofold decrease in the concentration of SOD (superoxide dismutase) and catalase (CT), as well as an increase in the concentration of MDA and SMP (medium molecular weight peptide) by more than 2 times compared with healthy children.

Children with RAP belong to the category of severe surgical patients, which, without a doubt, requires an adequate amount and duration of preoperative preparation. Immediate surgical intervention without correction of the main violations of homeostasis of the

child's body, in our opinion, is a serious tactical mistake.

Conclusions:

1.It has been established that during RAP, regardless of the prevalence of the process, there is a significant activation of the processes of degradation of biomolecules, which is accompanied by an almost twofold increase in the level of MDA and SMP against the background of inhibition of the enzymatic link of the antioxidant system - a decrease in SOD activity by 2.5, and catalase - by 1.8 times relative to control.

2.There were no significant differences in hemostasis parameters: APTT, PT and fibrinogen between the groups of diffuse and diffuse peritonitis, and the number of platelets was significantly lower in children with diffuse peritonitis, which may be a prerequisite for disorders in the microcirculation system, aggravating both peritoneal damage and increasing the risk of intra- and postoperative complications

3.In children with RAP, the intensity of endogenous intoxication and oxidative stress are the same in both diffuse and widespread peritonitis, indicating the presence of membrane-destructive processes

Used literature:

1.Gavrilyuk V.P., Konoplya A.I. Immunnieioksidantnienarusheniya u detey s appendikulyarnimperitonitom v zavisimostiotgruppikroviirezus-faktora // Sistemniyanaliziupravlenie v biomeditsinskixsistemax. 2010. T. 9. № 3. S. 692-696.

2. S. N. Gisak, E. A. Sklyarova, V. A. Vecherkin, A. V. Chernykh, N. V. Glagolev, D. A. Baranov, V. A. Ptitsyn, and L. S. Gurvich, Minakov O.A., Koryashkin P.V. Modern causes of late diagnosis of acute appendicitis in children // Pediatric Surgery. 2017. V. 21. No. 4. S. 185-189.

3.GisakS.N., SklyarovaE.A., VecherkinV.A., ChernixA.V., GlagolevN.V., BaranovD.A., PtitsinV.A., GurvichL.S., MinakovO.A., KoryashkinP.V. . Sovremennieprichinipozdneydiagnostikiostrogoappenditsitaudetey //Detskayaxirurgiya. 2017. V. 21. No. 4. S. 185-189.

4.Karaulov A.V., DonskayaE.V.The relationship of changes in laboratory parameters and clinical picture in children with appendicular peritonitis. Bulletin of new medical technologies. 2012. V. 19. No. 3. S. 38-40.

5.Zukhriddinovna, Z. D. (2022). Development of classification criteria for neuroretinal ischemia in arterial hypertension. central asian journal of medical and natural sciences, 3(3), 59-65. https://doi.org/10.17605/OSF.IO/K76ZT

6.Zuhriddinovna Z. D., Kamaljanovna M. D. development of classification criteria for neuroretinal ischemia in hypertension //web of scientist: international scientific research journal. - 2022. https://wos.academiascience.org/index.php/wos/article/view/951/882

7.Yuldashev S. S., Mamadaliev A. M., Aliev M. A. to questions of surgical tactics in damagesof the thoracic and lumbar parts of the spine //european journal of molecular & clinical medicine. - 2020 https://www.ejmcm.com/article_3419_20727dc3df7f4324cbcb048aa2f37c88.pdf

8.Bakhritdinov B.R, Aliev M.A, & Mardieva G.M. (2022). multivoxel magnetic resonance spectroscopy in the diagnosis of brain tumors. world bulletin of public health, https://scholarexpress.net/index.php/wbph/article/view/738

9.Mamadaliev A. M., Aliev M. A., Saidov K. D. The research of different methods efficiency of posttraumatic https://ejmcm.com/article_4676_1feec211fea5848f81258ea221dae974.pdf

10.Gisak S. N., Sklyarova E. A., Vecherkin V. A., Chernykh A.V., Glagolev N. V., Baranov D. A., Ptitsyn V. A., Gurvich L. S., Minakov O. A., Koryashkin P. V. Current causes of late diagnosis of acute appendicitis in children //Children's surgery. 2017.

11.GisakS.N., SklyarovaE.A., VecherkinV.A., ChernixA.V., GlagolevN.V., BaranovD.A., PtitsinV.A., GurvichL.S., MinakovO.A., KoryashkinP.V. Sovremennieprichinipozdneydiagnostikiostrogoappenditsitaudetey //Detskayaxirurgiya. 2017.

12.Z. , Z. D. (2022). rehabilitation and treatment algorithm for patients with ocular ischemic syndrome on the background of arterial hypertension. central asian journal of medical and natural sciences, https://doi.org/10.17605/OSF.IO/SYA5K

13.Zukhridinovna Z. D. modern aspects of neuroprotective treatment in hypertensive retinopathy //web of scientist: international scientific research journal. - 2022. https://wos.academiascience.org/index.php/wos/article/view/947/878

14.Zukhriddinovna, Z. D. (2022). Clinical and metabolic peculiarities children and teenagers with arterial hypertension. CAJMNS https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/755

15.Z. , Z. D., & K., M. D. (2022). magnetic resonance tractographyas a method of choice for neuroimaging in ocular ischemic syndrome against the background of

hypertension. central asian journal of medical and natural sciences, 3(2), 207-210. https://doi.org/10.17605/OSF.IO/E2AH9

16.D. Z, Z., Zh. B, E., & Z. Z, M. (2022). Changes visual systems at patients with essential arterial hypertension. central asian journal of medical and natural sciences, https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/851

17.Zuxridinovna, J. D. (2022). Ultrasonic dopplerography of retinal vessels in acute cerebral ischemia against the background of arterial hypertension. central asian journal of medical and natural sciences, https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/737

18.Babayev, S. A., Bekturdiev, S. S., Rakhimov, N. M., Jalalova, D. Z., Yusupova, D. Z., & Shakhanova, S. S. (2021). assessment of the state of immunity in patients with tumors. central asian journal of medical and natural sciences, https://doi.org/10.47494/cajmns.v2i3.204

19.Karaulov A.V., Donskaya E. V. Interrelation of changes in laboratory parameters and clinical picture in children with appendicular peritonitis // Bulletin of New Medical technologies. 2012. Vol. 19, No. 3, pp. 38-40.