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Intralipid in the Target Treatment of Lipid Peroxidation Disorder Caused by Oxidative and Nitro- Galogenic Stress in Patients with SARS-Cov2 / COVID / 19

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Authors' contributions

This work was carried out in collaboration among all authors. Authors Ilie Vasiliev, MV and Irina Vasilieva designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors SG, GG, MB, VD, NB, ED, Olga Tagadiuc, Pavel and Tanea Globa, NR, GP, LV, JB, GC, Lilian and Elena Globa, SI, LS, AC, MD'A, Oleg Tarabrin and Ilie Vasiliev managed the analyses of the study. Author Ilie Vasiliev managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: In the current proposal, we used the intralipid in standard therapy against COVID / 19 as an energy carrier for parenteral nutrition in critically ill patients. In patients receiving intralipid, there was an accelerated recovery of the lungs, a decrease in markers of endogenous intoxication (EI), tissue hypoxia and an improvement in general condition. In the absence of Intralipid in the intensive care unit, there was a slow recovery of the lungs and a more prolonged improvement in the general condition with the preservation of EI markers (cytolytic enzymes, C-reactive protein, platelets) and tissue hypoxia (pCO2 AV> 6 mm Hg). Collectively, Intralipid has been seen in the targeted LPO treatment plan for oxidative and nitro-galogenic stress in SARS-Cov2 / COVID / 19 patients.

Keywords: Intralipid; syndrome of maria&Irina vasilieva; SARS-Cov2/COVID/19; reactive oxygen species; reactive nitrogen species; oxidative and nitro-galogenic stress.

1. INTRODUCTION

Scientists Eldor J., Javid M.J., Zebardast J. has been published [1-8] the successful use of intralipid in postoperative cognitive impairments, the antitoxic effect of local anesthetics during neuraxial anesthesia, and also as an antidote to the toxic manifestations of calcium blockers, and since 2020, the anticovid / 19 effect.Coronavirus enters intracellularly thanks to both the molecule the protein Cluster of Differentiation (CD147) [also called extracellular matrix metalloproteinase inducers (EMMPRIN), or basigin (BSG), and belong to the immunoglobulin superfamily] and the Angiotensin-Converting Enzyme 2 (ACE2) receptors due to immunocompromising (IC) mechanisms. The predominance of the hyperinflammatory response (SIRS), due to the immune-paralysis of the anti-inflammatory response (CARS), manifests itself as IC CHAOS dissonance [9-10]. Vascular-pulmonary tissue is rich in ACE2 receptors, which contributes to rapid damage membranes to endothelium cells and alveocytes and the development of SARS-Cov2 / COVID19 respiratory failure, due to the accumulation of cytokine storm mediators. In other cases, protective cytokines aimed at destroying pathogenic bacteria, viruses, in cases of IC CHAOS dissonance, generates an imbalance between: Reactive oxygen species (ROS) / the antioxidant system (AS); reactive nitrogen species (RNS) / anti nitro oxidant system (ANOS) manifest themselves as Oxidative and Nitro-halogenic stress [11-13]. Accumulated metabolites ROS: oxygen free radicals (O_2^{-*} - superoxide radical anion, HO^* - hydroxyl radical), H_2O_2 molecules - hydrogen peroxide, singlet oxygen $^1O_2$, ozone O_3, hypochlorite HOCl; and RNS (main forms of NO (dinitrogen trioxide - N_2O_3; peroxynitrite – $ONOO^-$; nitric oxide radical – NO^*; nitrosonium cation – NO^+; nitrosoperoxycarbonate anion – $ONOOCOO^-$; nitrogen dioxide $^*NO_2$) behave aggressively against their own biological membranes. Reduction of ROS is carried out by activation of the ratio of prooxidant / antioxidants (GSH, Ascorbate, Retinols, Tocopherols, Urates, Carotenes, Bilirubin) and the $\Delta\mu H^+$ mechanism [14] and optimal use of O_2 in the respiratory chain, thereby reducing ROS and O_2. The predominance of RNS> ANOS activates the intracellular synthesis of the p53 protein, which induces the expression of apoptogenic proteins Bcl-2, Bax, Fas, p53AIP (Apoptosis inducing protein). Simultaneously with the destruction of membrane proteins, DNA and RNA, lipid peroxidation (LPO) of cell membranes occurs with the formation of: lipid radicals L *; peroxyls LOO *; hydroperoxyls LOOH; alkoxyls LO^*. In such cases, necrosis> apoptosis is clearly exceeded, since the predominant ROS> AS system also reduces the transmembrane potential on the inner mitochondrial membrane, provoking the Maria & Irina Vasilieva (electro-ion membrane distress syndrome) [15-17], disrupting the opening / closing of the Mitochondrial permeability transition pore-dependent Ca uniporter, mPT pore [18], conjugate process reflecting homeostasis of lysosomal mitochondrial autophagy clearance (mitophagy). Microcirculatory-mitochondrial distress syndrome, MMD is formed, with an increase in pCO2 (AV gap)> 6 mm Hg, as a reliable marker of tissue hypoxia. Extreme / Abnormal myelopoiesis exacerbates IR CHAOS dissonance, mediates MOD, and creates extreme genomic, transcriptomic, proteomic, metabolic, and phenomenal functional-structural disorders [17,19,20].

1.1 Purpose of the Study

Finding that Intralipid in the SARS-Cov2 / COVID / 19 treatment guidelines is recommended only in

parenteral nutritional treatment, we studied, described and other important functions of Intralipid in correcting the ROS / RNS balance that reduce LPO formation of endothelial cell membranes and alveocytes, essentially reducing mortality of these patients and accelerate recovery.

2. MATERIALS AND METHODS

In the COVID / 19 Intensive Care Unit, critical patients are hospitalized only with the positive confirmed diagnostic test RT-PCR (Coronavirus) (RNA, qualitative) in the nasopharyngeal exudate, were also examined for RPR, HIV etc**.** Intralipid was intravenously into a central vein used in 40 MODS SARS-Cov 2 / COVID-19 patients in the COVID19 Intensive Care Unit. Which developed Multiple Organ Dysfunction Syndrome (MODS) [21-30] against a background of various concomitant diseases: cancer, leukemia, diabetes mellitus, obesity, arterial - pulmonary hypertension, gastrointestinal bleeding, after surgery, with a pacemaker, liver cirrhosis, hormonal disorders and so on. The determination of the severity of SARS-Cov2 / COVID / 19 was determined according to the scales: HScore (P. Mehta et al.), high CRP, ESR, ferritin, fibrinogen, D-dimer, lymphopenia, thrombocytopenia; Thromboembolic risk (PADUA); Disseminated intravascular coagulation, DIC (ISTH); level of Consciousness (FOUR) in intubated patients; Organ failure (SOFA); Liver failure (Child - Turcotte - Pugh). Also determined: LDH ferments, Troponins, Creatinine phosphokinase, INR, Ionogram, Oxygenation Index SpO_2/FiO_2 ratio, pCO_2 (AV gap) and so on. Treatment of patients with SARS-Cov2 / COVID-19 was carried out in accordance with National Protocols, WHO with the manifestation of MODS was guided by the "Surviving Sepsis COVID-19" using (ECMO) MOST-ELSO [31]. Mechanical ventilation with alveolar recruitment [32]. Antiviral treatment: RNA-dependent RNA polymerase inhibition (Remdesivir); Inhibition of coronavirus fusion with the cell membrane by altering the pH of the cell membrane surface (Hydroxychloroquine); Protease inhibitors (Lopinavir / Ritonavir); Systemic Corticosteroids as Anti-Inflammatories (Dexamethasone); Immunomodulators (Tocilizumab - Selective IL-6 Receptor Antagonist; Anakira - Selective IL-1 Receptor Antagonist). Other authors have also used immunomodulators: Siltuximab, Baricitinib, Sarilumab. We also applied Convalescent plasma as a anti-COVID19 antibody carrier and active in IL-6 neutralization, with donor testing, including the absence of anti-HLA to prevent the risk of TRALI (Transfusion Related Acute Lung Injury); HNF (Unfractionated Heparin) Injectable Anticoagulant / HGMM (low molecular weight Heparin: Enoxaparin, Dalteparin, Nadroparin) in the treatment of Coagulopathies and for the prophylaxis of Venous Thromboembolism, Deep Venous Thrombosis, Pulmonary Embolism, DIC. We did not apply oral anticoagulants Intensive Care Patients, being recommended only to outpatients: Apixaban; Rivaroxaban. Antibiotics according to the de-escalation antibiotic therapy method for mono or multi inflammatory syndrome. Enteral and parenteral nutrition by applying Glucose; Amino Acids and Intralipid.

3. RESULTS

Severely ill patients with MODS SARS-Cov 2 / COVID-19 who were prescribed Intralipid for the purpose of parenteral nutrition, we noticed that they recover faster. The oxygenation index (OI) increased faster, SpO_2 / FiO2 up to 400; The SpO_2 saturation rose above 92 at FiO_2 0.21; improved INR; enzyme activity decreased LDH, troponins, creatinine phosphokinase, including pCO_2 (AV gap) <6 mm Hg, since the affected lung tissue was recovering, which was confirmed by X-ray.

4. DISCUSSIONS

We consider the observed improvement in the general condition in patients with SARS-Cov2 / COVID-19 after the use of Intralipid simultaneously with the energy carrier of parenteral nutrition and as its role in countering the development of lipid peroxidation disorder caused by Oxidative and Nitro-Galogenic stress. The observed encouraging therapeutic results after the use of Intralipid in patients with SARS-Cov2 / COVID-19 coincided with an improvement in the corresponding scales: HScore, PADUA, ISTH, FOUR, SOFA, Child - Turcotte - Pugh. The improvement of these rates was demonstrated by the universal membrane-cytoprotective mechanism of Intralipid in suspending and decreasing the aggressiveness of LPO in two possible ways: a) a direct decrease in the excess of ROS and RNS metabolites; b) increased activity of AS and ANOS. This also confirms the increase in OI to and above 400, which is possible with the restoration of destroyed endothelial and epithelial cells of the alveolar acini, capable of maintaining adequate

pulmonary gas metabolism. The actions of Intralipid to stop the ongoing destruction of cell membranes of LPO and a laboratory-proven decrease in cellular enzymes: LDH, Troponins, Creatinine phosphokinase are confirmed. Thus, Intralipid, acting on LPO, reduces the disorderly membrane-cell destructive actions: membrane destruction, swelling of plasma, lysosomes, mitochondria, karyorrhexis, DNA destruction, karyolysis. Also, these statements are confirmed by the regression of Maria&Irina Vasilieva syndrome [33] and Microcirculatory Mitochondrial Distress syndrome (MMDS) with a decrease in the tissue hypoxia marker pCO2 (AVgap) <6 mm Hg [34-40]. In this case, Intralipid also plays the role of microcirculatory-mitochondrial recruitment, reducing tissue hypoxia. As a result, MODS regressed, including the rapid recovery of consciousness and appetite [41-49]. We present X-ray images of two seriously ill MODS SARS-Cov 2 / COVID-19, of which one (A) received an Intralipid infusion, and the other (B) was not given, due to the absence of Intralipid in the hospital for financial and technical reasons. Apart from Intralipid, the treatment was the same for both patients. And the results are different. Patient A with repeated A_2 X-ray of the lungs after 4 days showed a clear improvement in comparison with the X-ray of A_1 lungs upon admission to the Intensive Care Unit, which made it possible to transfer the patient from the Intensive Care Unit, reducing the number of bed days, which is very important in a Pandemic. And in-patient B, who did not receive intralipid (was absent from the hospital), a repeated X-ray of the lungs after 6 days B_2, was without improvement in relation to X-ray image B_1, upon admission to the Department of COVID Intensive Care. Patient B continues intensive treatment [50-57].

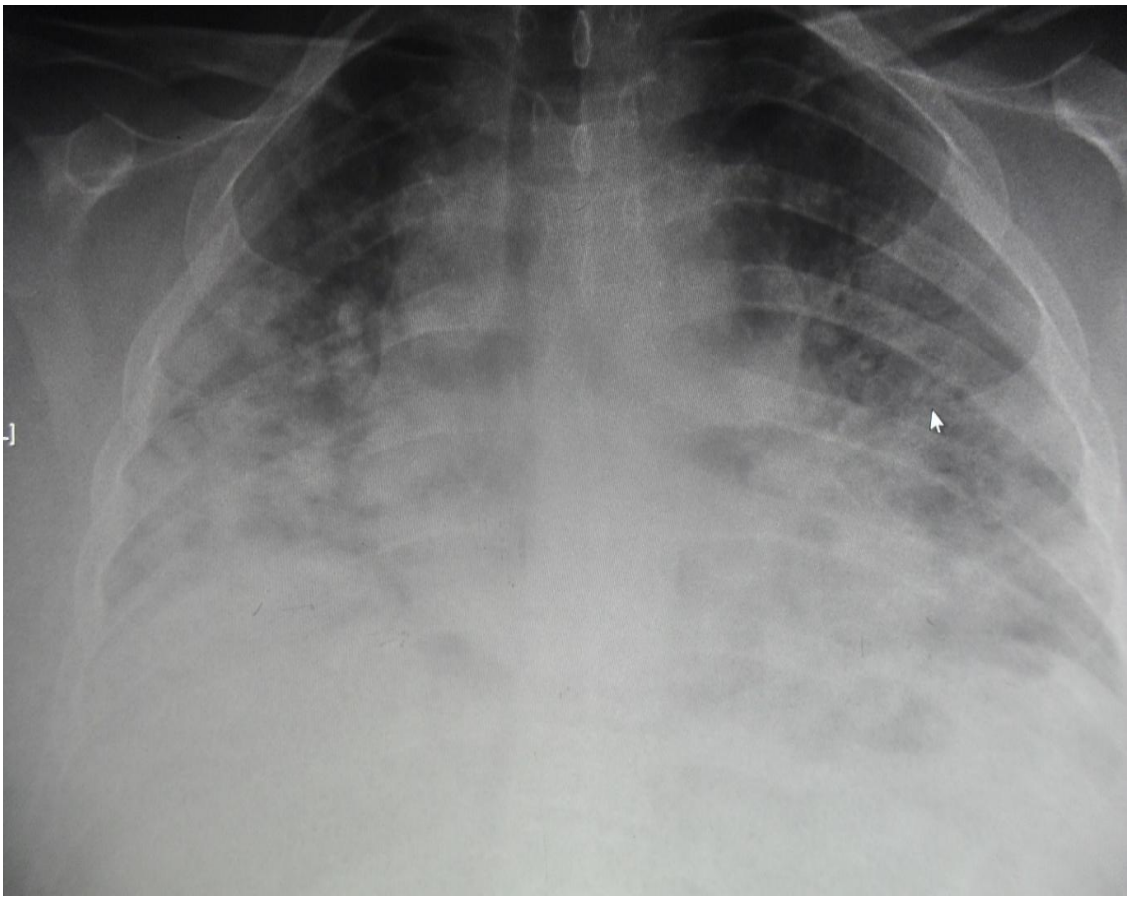

Fig. 1. X-ray. A X-ray of the lungs of the patient "IJ" MODS SARS-Cov 2 / COVID-19 before the Intralipid infusion, during transfer to the Department of Intensive Care COVID-19. 16 November 2020. (A_1)

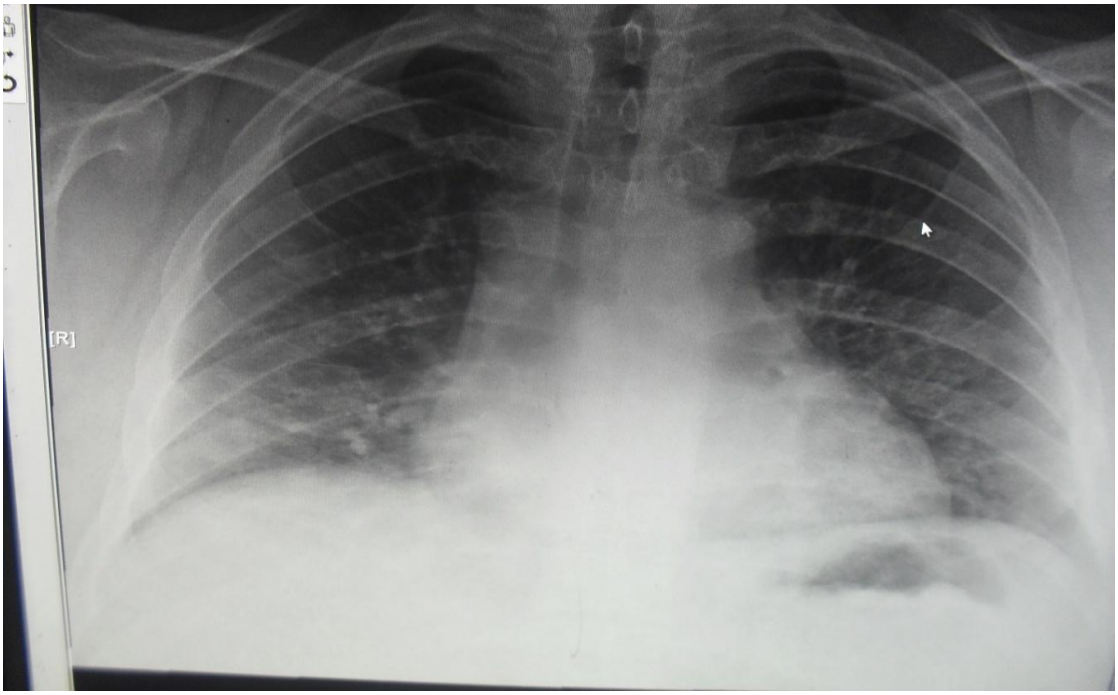

Fig. 2. X-ray. A X-ray of the lungs of the patient "IJ" MODS SARS-Cov 2 / COVID-19 after the Intralipid infusion, when transferring from to the Department of Intensive Care COVID-19. 20 November 2020. (A_2)

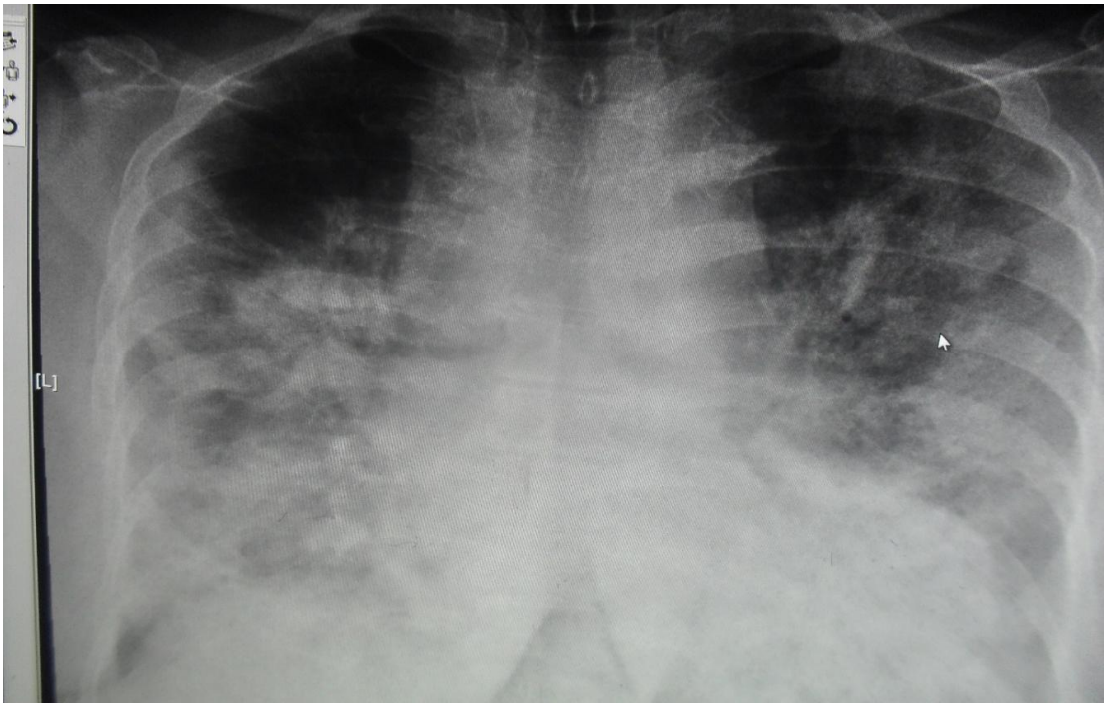

Fig. 3. X-ray. X-ray of the lungs of the patient "ChN" MODS SARS-Cov 2 / COVID-19 during transfer to the Department of Intensive Care COVID19. 24 November 2020. (B_1)

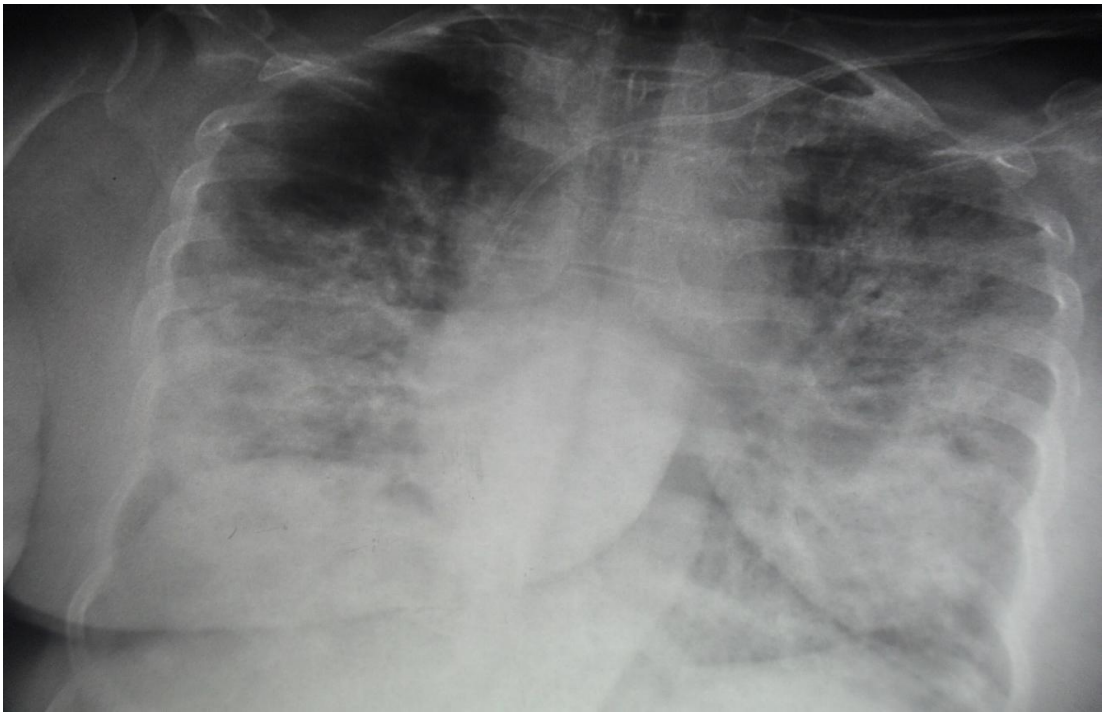

Fig. 4. X-ray. X-ray of the lungs of the patient "ChN" MODS SARS-Cov 2 / COVID-19, without Intralipid perfusion, continues treatment in the intensive care unit COVID19. 30 November 2020. (B_2)

5. CONCLUSIONS

1. 1.Intralipid at Oxidative and Nitro-Galogenic stress in patients with SARS-Cov2 / COVID / 19, favors the predominance of the membrane-cytoprotective action of ROS / RNS over the membrane-cyto destructive action, restoring the balance between [ROS / AS] / [RNS / ANOS].
2. Membrane-cytoprotective mechanism Intralipid is due to a decrease in ROS and RNS and an increase in the activity of AS and ANOS, stopping LPO, reduces Maria&Irina Vasilieva syndrome, accelerates the regeneration of endothelial and epithelial cells of alveolar acinus, restoring gas-respiratory metabolism and the predominance of physiological cell apoptosis over necrosis.
3. Intralipid at SARS-Cov 2 / COVID / 19 opposes MMDS by microcirculatory - mitochondrial recruitment, as a result of which pCO2 (AVgap) <6 mm Hg, since LPO decreases and at the level of mitochondrial membranes, improving the function of Mitochondrial permeability transition pore-dependent Ca uniporter, mPT pore, support energy metabolism, eliminating energy deficits, restoring Extreme / Abnormal myelopoiesis and impaired autophagy (mitophagy).

Thus, Intralipid has shown in the strategy of targeted treatment of LPO in Oxidative and Nitro-Galogenic stress in patients with SARS-Cov2 / COVID / 19.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

NOTE

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Eldor J. Can the last protocol be used as a coronavirus protocol? Linkedin; 2020. Available:https://www.linkedin.com/pulse/can-last-protocol-used-coronavirus-joseph-eldor/
2. Eldor J. Can Intralipid (lipid emulsion) inactivate the coronavirus? Someone in china must to test it! Linkedin; 2020. Available:https://www.linkedin.com/pulse/can-intralipid-lipid-emulsion-inactivate-coronavirus-someone-eldor/
3. Eldor J. Can Intralipid (lipid emulsion) inactivate the coronavirus? Linkedin; 2020. Available:https://www.linkedin.com/pulse/can-intralipid-lipid-emulsion-inactivate-coronavirus-joseph-eldor/
4. Eldor J. Can Intralipid (lipid emulsion) inactivate the coronavirus? Linkedin; 2020. https://www.linkedin.com/pulse/can-intralipid-lipid-emulsion-inactivate-coronavirus-joseph-eldor-1e/
5. Eldor J. Intralipid (lipid emulsion): A novel lipid-based branch of antiviral research - It MUST be Clinically tested NOW. Linkedin; 2020. Available:https://www.linkedin.com/pulse/intralipid-lipid-emulsion-novel-lipid-based-branch-antiviral-eldor/
6. Eldor J Can. Intralipid (lipid emulsion) inactivate the coronavirus? Linkedin; 2020. Available:https://www.linkedin.com/pulse/intralipid-lipid-emulsion-novel-lipid-based-branch-antiviral-eldor/
7. Eldor J, Nguyen T.A, Nguyen K.T, et al. Intralipid is a magic bullet; 2018. Available:https://www.smashwords.com/books/view/843448
8. Javid MJ, Zebardast J. Rescue therapy with intralipid for pulmonary complications of Covid 19: A new approach. Austin J. Anesthesia and Pain Relief. 2020;8(2):1087.
9. Vasiliev I, Vasilieva M, Vasilieva I, Catereniuc I, et al. The extracorporeal bio-xeno perfuzion (myelo-timo-spleen) in multi-organ suportive therapy (MOST) as a modulator of energy, for immuno corection compensatory anti-inflamatory respons sindromes, and persistent inflammation, imunno supression, catabolism, and multi organ dysfunction. J Anesth Patient Care; 2015;1:1045.
   DOI: 10.15744/2456-5490.1.104
10. Vasiliev I, Vasilieva M, Vasilieva I, Catereniuc I, et al. Aggressiveness syndrome hyperantiinflammatory immune chaos dissonance and extracorporeal myelotimospleen perfusia. Tolyatti Med Counc; 2016;3-4:64-7.
    Available: https://www.elibrary.ru/item.asp?id=27208738
11. Vasiliev I, Vasilieva Maria, Vasilieva Irina, Ghicavii V, et al. The recruitment of microcirculatory-mitochondrial of critical obstetric situations in the complex multi-organ support therapy reduces pCO2 (AV gap) and the development of the syndrome of acute multi-organ dysfunction. Journal of Genetic Disorders; 2020.
    DOI: 10.21767/2471-8084-C1-022.
    Available:https://www.imedpub.com/scientific-journals-list/top-open-access-social-media-journals-1244.html
12. Vasiliev I, Vasilieva Maria, Vasilieva Irina, Ghicavii V, et al. The recruitment of microcirculatory-mitochondrial of critical obstetric situations in the complex multi-organ support therapy reduces pCO2 (AV gap) and the development of the syndrome of acute MODs. Biochem Mol Biol J. 2019; 5:22.
    DOI: 10.21767/2471-8084-C1-022
    Available:https://www.imedpub.com/scientific-journals-list/antibiotic-production-peerreview-journals-5470.html
    Available:https://www.imedpub.com/conference-abstracts/keynote/biotechnology-biomarkers-systems-biology-2019-proceedings.html
    Available:https://www.imedpub.com/proceedings/the-recruitment-of-microcirculatorymitochondrial-of-critical-obstetric-situations-in-the-complex-multiorgan-support-ther-6818.html
    Available:https://www.imedpub.com/conference-abstracts-files/2471-8084-C1-022-001.pdf

13. Vasiliev I, Vasilieva Maria, Vasilieva Irina, Ghicavii V, Litarczek G, Friptu V. The recruitment of microcirculatory-mitochondrial of critical obstetric situations in the complex multi-organ support therapy reduces pCO2 (AV gap) and the development of the syndrome of acute multi-organ dysfunction. Genetics and Molecular Biology Research; 2020. DOI: 10.21767/2471-8084-C1-022 Available:https://www.imedpub.com/scientific-journals-list/dna-sequencing-technologies-highimpact-journals-16120.html
14. Irina Vasilieva, Maria Vasilieva, Vasiliev I*, Groppa S, et al. Role of pCO2 (AV gap) of multi organ dysfunction syndrome. J Biomed Pharm Sci. 2019;2:2. Corpus ID: 216118775 Available:https://www.hilarispublisher.com/open-access/role-of-pco2-av-gap-of-multi-organ-dysfunction-syndrome.pdf
15. Maria Vasilieva, Irina Vasilieva I, Vasiliev M, Malakhova, et al. Electro - Ion membrane distress syndrome induces chronic fatigue syndrome/ myalgic encephalomyelitis (CFS/ME). ResearcheGate. Berlin. Germany; 2020. Available:https://www.researchgate.net/publication/341781287_Electro_-Ion_Membrane_Distress_Syndrome_induces_Chronic_Fatigue_SyndromeMyalgic_Encephalomyelitis_CFSME
16. Maria Vasilieva, Irina Vasilieva I, Vasiliev M, Malakhova, et al. L'importance du sindrom maria&irina vasilieva (syndrome de détresse de la membrane électro-ionique) dans le développement du syndrome CFS/ME. Publiched on Linkedin. WAMS; 2020.
17. Maria Vasilieva, Irina Vasilieva I, Vasiliev M, Malakhova, et al. Electro-Ion membrane distress syndrome induces chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME). J Clin Res Anesthesiol. 2019;2:1:1 Available:https://asclepiusopen.com/journal-of-clinical-research-in-anesthesiology/volume-2-issue-2/3.pdf
18. Vasilieva Irina, Vasilieva Maria I, Vasiliev V, Ghicavii, et al. Triphosphoric acid, donated, restores heart rhythm disturbances caused by energetically deficient, mitochondrial hypercalcaemia to Ca++ mpt pore lesion. J Clin Res Anesthesiol. 2018;1:1-3. Available:https://asclepiusopen.com/journal-of-clinical-research-in-anesthesiology/volume-1-issue-2/6.pdf
19. Irina Vasilieva. Genetic aspects of addiction. Public Health Chronicle. Journal of the State Public Health Surveillance Service. 2018;1(46):9-10. Available:https://ansp.md/wp-content/uploads/2014/06/nr1_CSP.pdf
20. Vasilieva I. Genetic aspects of addiction. Mol Biol Human Gen. 2016:1-9. Available:https://usmf.md/wp-content/uploads/2016/10/Program-Invita%C5%A3ie-Conferinta-Anuala-20161.pdf
21. Vasiliev I. Biotechnology, biomarkers & systems biology 2019: Mitochondrial of critical obstetric situations in the complex multi-organ support therapy reduces pCO2 (AV gap) and the development of the syndrome of acute multi-organ. Scholars Research Library J. of Computational Methods in Molecular Design; 2020. Available:https://www.scholarsresearchlibrary.com/abstract/biotechnology-biomarkers-systems-biology-2019-mitochondrial-of-critical-obstetric-situations-in-the-complex-multiorgan-s-48117.html
22. Vasiliev I. Mitochondrial of critical obstetric situations in the complex multi-organ support therapy reduces pCO2 (AV gap) and the development of the syndrome of acute multi-organ dysfunction. World Academy of Medical Sciences. WAMS' International Medical Research Council (IMREC). J. of Computational Methods in Molecular Design. 2020;10:2.
23. D'Ambra M, Vasiliev I, Shevcenko V. When the trauma is serious. Am J Biomed Sci Res. 2019;2:241. DOI: 10.34297/AJBSR.2019.02.000616 Available:https://biomedgrid.com/search-articles.php
24. Diug V, Vasiliev I. Definitive haemostasis in hematoma postpartum massive hemorrhage sum of summaries. romania, Iasi: National Conference. 2018;44-6. Available:http://www.radioiasi.ro/wp-content/uploads/sites/6/2018/04/ZileleDobrovici_site-aprilie-2018.pdf
25. Vasiliev I, Creciun A. Cases of anaphylactic shock and tactics emergency therapy. Courr Med. 1986;5:51-3.
26. Vasiliev I, Calalb I, Bujujan A, Cacian M. Successful treatment of disseminated intravascular cagulation

syndrome in obstetrics. Actual Problems Anesthesiology and Intensive Therapy. Arkhangelsk: 2nd White Sea Symposium. 2007;106-8.
Available:http://www.anesth.ru/CONTENT/BEL%20SYMPOSIUM/BS-ABSTRACTS.pdf

27. Vasiliev I, Ceban N. The lymphotropic therapy with lymph stimulation in complex treatment of exotoxin shock. Health Care. 1989;2:53-4.
28. Vasiliev I, Solodkin S, Nistor V, Bogdan V. The extracorporeal bio-xeno perfusion as a complex therapeutic component of the treatment of septicemia on the background of associated injury. Courr Med. 1993;2:56-9.
29. Vasiliev I, Malachi M, Niculita I. The extracorporeal bio-xeno perfusion (timo-spleen) for the complex treatment of systemic lupus erythematosus. Courr Med. 1996;2:41-3.
30. Ignatenco S, Vasilieva Irina, Crăciun I. Temporary closure of the abdominal cavity in patients undergoing mesenteric ischemia. E-Poster. Congress dedicated the 75th anniversary of the founding of the State University of Medicine and Pharmacy "Nicolae Testemițanu". October 21-23. Chisinau. 2020;39
Available:https://usmf.md/sites/default/files/inline-files/PROGRAM_16.10.2020-PROIECT-.pdf
Available:http://repository.usmf.md/bitstream/20.500.12710/12697/1/INCHIDEREA_TEMPORARA_A_CAVITATII_ABDOMINALE_LA_PACIENTII_OPERATI.pdf
31. Vasiliev I, Vasilieva M, Vasilieva I. The medico legal indications and contraindications to the use ECMO and ECCO2R at Ali/Ards. United States: Project Proposed for Discussion and Study Wams. 2016;6-9.
32. Vasiliev I. Respiratory support with alveolar recruitment for complex treatment of acute lung injury and acute respiratory distress syndrome. Krasnoyarsk: International Congress for Respiratory Support. 2009;2-7.
33. Irina Vasilieva, Maria Vasilieva I. Vasiliev M. Malakhova, et al. Maria & irina vasilieva syndrome contributes to the manifestation of chronic fatigue syndrome/ myalgic encephalomyelitis syndrome (CFS / ME). E-Poster. National Congress of UroGynecology. "Vasile Dobrovici" Medical Days - November 26-28 - exclusively online. Iași. Romania. 2020;14.
Available:https://zd-urogin2020.medical-congresses.ro/
34. Vasiliev Ilie, Vasilieva Irina, Vasilieva Maria. Prevention of the development of multi organ dysfunction syndrome-is achieved by complex methods of recruiting microcirculatory-mitochondrial distress syndrome, in which the pCO2 (AV gap) Increases. Austria: Éditions Universitaires Européennes; 2019.
35. Vasiliev I, Vasilieva M, Vasilieva I, Litarczek G, Friptu V, Gladun S. Suspending microcirculatory-mitochondrial distress syndrome by recruiting microcirculatory-mitochondrial disorders of obstetric critical situations. Iasi, Romania: National Congressional Society of Obstetric and Gynecological Society of Romania Sum of Summaries. 2018; 167.
36. Vasiliev I, Vasilieva M, Vasilieva I, Litarczek G, et al. Suspending microcirculatory-mitochondrial distress syndrom by recruiting microcirculatory-mitocondrial disorders of obstetric critical situations. E-poster. Iasi, Romania: National Congressional Society of Obstetric and Gynecological Society of Romania, Sum of Summaries. 2018;41.
37. Vasiliev I, Maria V, Irina V, Ghicavii V, et al. The recruitment of microcirculatory-mitochondrial of critical obstetric situations in the complex most reduces pCO2 (AV gap) and the development of the syndrome of acute MODs. Amsterdam: Proceeding of International Conference on Biotechnology, Biomarkers and System Biology. Session Chair Vasiliev Ilie, Keynote Presentation. 2019;22.
DOI: 10.21767/2471-8084-C1-022
Available:https://www.imedpub.com/conference-abstracts-files/2471-8084-C1-022-001.pdf
38. Vasiliev I., Vasilieva M. Vasilieva I, Litarczek G, et al. De-instalation of the MODs by associating the microcirculatory-mitochondrial recruitment with most in ELSO. Perinatology Bulletin. Journal of Research Practice Suppliment. Chişinău: VI National Congress of Obstetrics ang Ginecology with International Participation. 2018;3:6.
Available:https://ru.scribd.com/document/391903001/Buletin-de-Perinatologie-Supliment

39. Vasiliev I, Vasilieva M, Vasilieva I. Recruitment of microcirculatory-mitochondrial of critical obstetric situations in the complex of most stops the development of the MODs. Barcelona, Spain: Global Summit on Medicine, Pharmacology and Cancer Research with WAMS; 2018.
40. Vasiliev I, Vasilieva M, Vasilieva I. Recruitment of microcirculatory-mitochondrial of critical obstetric situations in the complex of most. Chisinau: IV National Obstetric Congress with International Participation. Republic of Moldova. 2018;14. Available:https://obstetrica.usmf.md/en/node/18764
41. Moldovan I, Vasilieva Maria, Odobescu S, Rotaru L. Altered state of consciousness-possible factor of amplification of the therapeutic effect of neurostimulation in chronic pain. Bull Acad Sci Moldava Spec ed. 2018;1-6. Available:https://stiinta.usmf.md/sites/default/files/inline-files/Raport%20USMF%202018%20final.pdf
42. Vasilieva Maria. The role of modified consciousness in the possibility of neuro-stimulation treatment in chronic pain. Moldova: Days of the State University of Medicine and Pharmacy Nicolae Testemitanu. 2018;47. Available:https://stiinta.usmf.md/sites/default/files/inline-files/_%20%20Programul%20Conferin%C5%A3ei%20%C5%9Ftiin%C5%A3ifice%20anuale%2C%2017-19%20octombrie%202018%20.pdf
43. Vasilieva Maria. Altered state of consciousness as a possible factor to amplify the therapeutic effect in the case of neurostimulation in the chronic pain. Chisinau: Scientific Adviser MD, PhD, Professor, Department of Neurology Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova Association of Medical Students and Residents Abstract Book MedEspera 2018 The 7th International Medical Congress for Students and Young Doctors May 3-5, Universul" 2018;56. Available:https://medespera.asr.md/wp-content/uploads/Abastract-Book-2018.pdf
44. D'Ambra M, Vasiliev I, Karindas M. Small brain vessels disease. Biomed J Sci Technol Res. 2019;19:14555-6. DOI: 10.26717/BJSTR.2019.19.003355 Available:https://biomedres.us/fulltexts/BJSTR.MS.ID.003355.php
45. Maria V, Irina V, Vasiliev I, Groppa S, et al. Neurovegetative correction of diencephalic-hyperkinetic, catabolic adrenergic syndrome. J Clin Res Anesthesiol. 2018;1:1-3. Available:https://asclepiusopen.com/journal-of-clinical-research-in-anesthesiology/volume-1-issue-2/5.pdf
46. Călcâi Cornelia, Hadjiu Svetlana, Revenco Ninel, Vasilieva Maria. Evolutionary peculiarities of stroke in young children following cranio-cerebral trauma. Bull Acad Sci Mold. 2017;2; 54:320-3. Available:http://old.asm.md/administrator/fisiere/editii/f54.pdf
47. Vasilieva Maria, Rîbac Nicolae, Țurcanu Vitalie. Strokes in young children, clinical case (scientific advisory - MD Cornelia Călcîi, associate professor, Department of Pediatrics). "Nicolae Testemitanu" State University of Medicine and Pharmacy. The annual scientific conference, dedicated to the 90th anniversary of the birth of the illustrious Professor and scientist Nicolae Testemitanu. 2017;41:16-20. Available:https://usmf.md/wp-content/uploads/2014/10/Program-invita%C5%A3ie-Conferinta-stiintifica-anuala-2017-versiunea-2-1.pdf
48. Vasilieva Maria. Cerebral intestinal microbiome axis (scientific advisory – Academician. Professor PhD Stanislav Groppa, Head of the Neurology Department no. 2 "Nicolae Testemitanu" State University of Medicine and Pharmacy). 2019;48. Available:https://stiinta.usmf.md/sites/default/files/inline-files/2019%20Programul%20Conferin%C5%A3ei%20%C5%9Ftiin%C5%A3ifice%20anuale%2C%2016-18%20octombrie.pdf
49. Vasilieva Maria. Epileptic seizures - primary manifestation in cerebral autoimmune pathology. Differential diagnosis between Multiple Sclerosis and Systemic Lupus Erythematosus (clinical case). Congress dedicated to the 75th anniversary of the founding of the State University of Medicine and Pharmacy, USMF "Nicolae Testemitanu". Chisinau. 2020;3621-23. Available:https://usmf.md/sites/default/files/inline-files/PROGRAM_16.10.2020-PROIECT-.pdf

50. Cojocaru V, Ceban E, Vasilieva Irina, Vasilieva Maria, et al. Derrote o mortal SARS-Cov-2 / COVID 2019. Published on LinkedIn. WAMS; 2020.
51. Cojocaru V, Ceban E, Vasilieva Irina, Vasilieva Maria, et al. Como testigo, salvando su propia vida del SARS-COV-2 / COVID19. Published on LinkedIn. WAMS; 2020.
52. Cojocaru V, Ceban E, Vasilieva Irina, Vasilieva Maria, et al. Tödliche β-SARS - Cov-2 COVID 19 ist noch kein Satz. Published on LinkedIn. WAMS; 2020.
53. Cojocaru V, Ceban E, Vasilieva Irina, Vasilieva Maria, et al. Mortel SARS - Cov-2 / COVID19 peut être vaincu. Published on LinkedIn. WAMS; 2020.
54. Cojocaru V, Ceban E, Vasilieva Irina, Vasilieva Maria et al. Successful resuscitation of deadly SARS - Cov-2 / COVID19. Bioinformatics & Proteomics Open Access Journal. 2020:4:1. Available:https://medwinpublishers.com/BPOJ/successful-resuscitation-of-deadly-sars-cov2-covid19.pdf
55. Revenco N, Foca S, Jivalcovschi A, Ziaev L, et al. Challenges of pediatric multisystem inflammatory syndrome associated with COVID-19 - A Series of Clinical Cases. Biomedical Research and Clinical Reviews. 2020;4:1-3. DOI: 10.31579/2692-9406/027
56. Vasilieva Maria. Biochemical quality changes in tears. Vinnitsa (Ukraine): XIY Materials at the International Student Conference. 2018;34-7.
57. Vasilieva Maria. Biochemical changes in the tear. Moldova USA: Days of the State University of Medicine and Pharmacy Nicolae Testemitanu. 2014;16. Available:http://repository.usmf.md/handle/20.500.12710/6075

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