

Application of Low Level Laser in the Treatment of Patients with COVID-19 (SARS-CoV-2)

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Received: June 24, 2020; **Accepted:** July 06, 2020; **Published:** July 13, 2020

Keywords: Laser, Low Level Laser, Virus, Corona, Coronaviruses, SARS-CoV-2, Pneumonia and COVID-19

A novel virus named 2019 novel coronavirus (2019-nCoV/SARS-CoV-2) is the cause of a syndrome of symptoms that are classified as coronavirus disease (COVID-19) [1]. COVID-19 was first described among a case-series of patients that visited a local market in the Chinese city of Wuhan in December 2019 and the virus was first isolated on 7 January 2020 [2]. Since then, COVID-19 has spread around the world with the most recent estimates, as of 10 April 2020 revealing that there are currently 1,631,310 confirmed cases and 98,400 deaths [3].

Most of the published articles on COVID-19 have highlighted lungs as the main organ involved in the disease, while few articles have reported SARS-CoV-2 involvement in other organs, including liver and kidneys, which can impair the metabolism and excretion of the medications taken to treat the disease. According to Zhang et al. the incidence of hepatic abnormalities significantly increases after infection with COVID-19 and during the course of the disease, which may indicate the effect of SARS-CoV-2 on the liver or side effects of the medications used by patients and as of this time there is no known specific, effective, proven, pharmacological treatment [4,5].

Effects and mode of operation of intravenous Low-Level-Laser-Therapy of the blood

One under laser blood irradiation, anti-inflammatory effects were observed that improved the immunologic activity of the blood 1.2. A fundamental finding was the positive influence on rheological properties of the blood which is of greatest interest to surgery, angiology and cardiology in particular 2. A diminishing tendency of aggregation of thrombocytes and an improved deformability of erythrocytes result in an improved oxygen supply and with that to a decrease of partial carbon dioxide pressure, which is particularly relevant to wound healing 3. Furthermore, the activation of phagocytic activity of macrophages was proved in conjunction with structural modifications. A positive effect on the proliferation of lymphocytes and B- and T-cell-subpopulations could be verified too [6].

Laser therapy has biostimulative and tissue regenerative properties as well as antimicrobial, anti-inflammatory and analgesic effects. Studies on its effects in respiratory disease have shown improvement in both gas exchange and pulmonary function, as well as enhanced immunity and other health benefits [7].

There are several extraordinary effects that have been observed with therapeutic lasers, and phototherapy makes laser therapy unique among the various healing modalities available today. Photobiomodulation produces changes in oxidation/reduction status of the mitochondria which leads to dramatic increases in ATP synthesis. Activation of the sodium/potassium pump alters the cell membrane permeability to calcium [8,9].

An example of the use of a low-power laser in pneumonia was used as part of routine treatment in one of the groups. The findings demonstrate that non-drug treatment had an undeniably positive impact. There was an earlier regress of clinical symptoms and a sound recovery of functional parameters. In the absence of side effects of this method, these data allow infrared laser therapy to be recommended for rehabilitation of elderly patients with pneumonia [10].

Or research Intravenous laser therapy activity Korochk in IM with his team in the year 2010 showed The effects of laser therapy on the clinical picture, status of the coagulation system cellular and plasma factors, fibrinolysis, and on the blood stream at the site of the pneumonic involvement have been examined in the patients with acute pneumonias in single tests and after a course of treatment. Intravenous laser therapy has had a favorable effect on the clinical course of acute pneumonias, accelerating the terms of pneumonia resolution and promoting an earlier and more complete restoration of the blood stream and normalization of the hemostasis, in contrast to routine therapy [11].

And these articles point to the effectiveness of lasers in the coronavirus Timon Cheng with Team apply VSTM to discuss the possibility that light from UVA to IR is used to inactivate the coronavirus of severe acute respiratory syndrome and in article Ehsan Kamani The coronavirus has been shown to bind to the cell

via the angio-tensin-converting enzyme receptor, which is highly expressed in lung and heart cells. For this reason, the virus is the main attack on lung and heart tissue. The important thing is that this receptor gets overloaded with over-vitamin D in the body. Or, to put it simply, if vitamin D levels in the body are balanced, acute cases of coronary heart attack will not occur. Because of this, we can raise the level of safety of people with and without this disease with the proven properties of yellow laser light that increases vitamin D levels in both spot and laser treatments KN Prodoz with team in year 2011 Inactivation of virus by UV radiation These results demonstrate that intensities hardy virus is significantly inactivated and platelets and plasma proteins are, by functional criteria, minimally affected [12-14].

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