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Short communication

## Oxygen-ozone (O<sub>2</sub>-O<sub>3</sub>) immunocutaneous therapy for patients with COVID-19. Preliminary evidence reported

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### ABSTRACT

**Objective:** This study evaluated the potential efficacy of a novel approach to treat COVID-19 patients, using an oxygen-ozone (O<sub>2</sub>-O<sub>3</sub>) mixture, via a process called Oxygen-Ozone- Immunocutaneous Therapy. The methodology met the criteria of a novel, promising approach to treat successfully elderly COVID-19 patients, particularly when hospitalized in intensive care units (ICUs) **Experimental design:** We investigated the therapeutic effect of 4 cycles of O<sub>2</sub>-O<sub>3</sub> in 50 hospitalized COVID-19 subjects suffering from acute respiratory disease syndrome (ARDS), aged more than 60 years, all males and undergoing non invasive mechanical ventilation in ICUs.

**Results:** Following O<sub>2</sub>-O<sub>3</sub> treatment a significant improvement in inflammation and oxygenation indexes occurred rapidly and within the first 9 days after the treatment, despite the expected 14–20 days. A significant reduction of inflammatory and thromboembolic markers (CRP, IL-6, D-dimer) was observed. Furthermore, amelioration in the major respiratory indexes, such as respiratory and gas exchange markers (SatO<sub>2</sub>%, PaO<sub>2</sub>/FiO<sub>2</sub> ratio), was reported.

**Conclusion:** Our results show that O<sub>2</sub>-O<sub>3</sub> treatment would be a promising therapy for COVID-19 patients. It leads patients to a fast recovery from ARDS via the improvement of major respiratory indexes and blood gas parameters, following a relatively short time of dispensed forced ventilation (about one to two weeks). This study may encourage the scientific community to further investigate and evaluate the proposed method for the treatment of COVID-19 patients.

### 1. Introduction

The “new” coronavirus, SARS-CoV-2, the causative pathogen of COVID-19, rapidly spread worldwide with a significant mortality rate [1]. According to the World Health Organization (WHO), SARS-CoV-2 is characterized by a 14-days incubation period and despite this interval is typically reported for the previous SARS-CoV1, it is yet considered as the minimal window time where COVID-19 should initiate its symp-

millions of people under lockdown to face at the rapid SARS-CoV2 outbreak and to prevent further spreading of the disease by non-hospitalized and mainly asymptomatic people. In symptomatic COVID-19 patients an exacerbation of the disease, notably characterized by a systemic disorder of vascular physiology, pulmonary function and immunity, rapidly occurs [5,6]. Evidence-based medicine has recently developed a promising bulk of therapeutic approaches against this disease and research worldwide against COVID-19 is increasing its ef-

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