FIBICO – COMPOUNDS FOR THE PROPHYLAXIS AND/OR TREATMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME

Abstract

A research group from the Andalusian Public Health System (SSPA) has developed a pharmacological treatment for the prophylaxis and/or treatment of acute respiratory distress syndrome (ARDS).

Description

Calcitriol, also known as 1,25-dihydroxyvitamin D3 (1,25-$(OH)_2D_3$), is the hormonally active form of the vitamin D endocrine system. It exerts its biological actions through stimulation of the vitamin D receptor (VDR). Calcitriol has been classically associated with the maintenance of calcium and phosphorus homeostasis and bone health. The authors of the present invention propose its use in acute respiratory distress syndrome (ARDS).

In the context of the present invention, VDR is also defined by a nucleotide or polynucleotide sequence, which constitutes the coding sequence of the NK-1R protein.

Therefore, in a preferred embodiment of this aspect of the invention, the vitamin D receptor (VDR) agonist for use in the prevention, improvement, relief, or treatment of ARDS is selected from the list consisting of: calcifediol, calcitriol, or paricalcitol. In another preferred embodiment, other analogues are also used, preferably paricalcitol analogues with reduced hypercalcemic effects.

The inventors of the present invention note that ICU patients admitted due to SARS-CoV-2 treated with these agents are at risk of vitamin D deficiency, which may be induced or worsened by medications, potentially exacerbating a pre-existing deficiency associated with the infection.

The other active ingredient is selected from among an antiviral, chloroquine, hydroxychloroquine, IL-6 antagonists such as Tocilizumab, or any combination thereof. More preferably, the antiviral is selected from among Favilavir, Remdesivir, Galidesivir, Lopinavir, Ritonavir, Ribavirin, Darunavir, Cobicistat, or any combination thereof.

Advantages

The endocrine, autocrine/paracrine action on VDR:

1. Reduces the intensity of the cytokine and chemokine storm, with topical safety during and after application.
2. Modulates neutrophil activity.
3. Maintains the integrity of the pulmonary epithelial barrier.
4. Stimulates epithelial repair.
5. Directly and indirectly reduces the risk of hypercoagulability and pulmonary or systemic thrombosis.

Industrial/ Intellectual protection

This technology is protected under a national patent and has entered the U.S. national phase.

Objective of the Collaboration

Seeking a collaboration that leads to the commercial exploitation of the presented invention. The terms and conditions of the licensing agreement can be openly discussed if the presented technology is of interest.

Clasification

Activity/Type: Medicine
Pathology: Autoimmune and Inflammation, Respiratory and Pulmonary System.

Representative Institution an Inventor

The principal investigator behind the innovation is José Manuel Quesada Gómez, belonging to the Clinical Management Unit of Endocrinology.

The development of the project has been made possible thanks to the collaboration of researchers from Virgen de Valme Hospital and Reina Sofía University Hospital.

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