PREDICTION OF ACUTE RESPIRATORY DISTRESS IN COVID-19 PATIENTS

A research group from CIBER, IBSAL,USAL , and FIBHUB has patented a new method to rapidly identify patients with high risk to develop ARDS from blood samples

The Need

ARDS and sepsis are acute inflammatory conditions associated with high morbidity and mortality, often involving multiple organ failure. ARDS is caused by a wide variety of infectious or inflammatory stimulus to the lung and its pathology hallmarks are diffused alveolar damage manifested by disruption of alveolar capillary interface, accumulation of immune cells and protein-rich exudates in the alveolar spaces.

SARS-CoV-2 infections cause local and systemic inflammatory response but in persistence of sepsis, there is a rapid shift towards an anti-inflammatory immunosuppressive state, and a cytokine storm with systemic consequences and the presence of anti- antibodies (AABs).

Currently, there is an unmet medical need of finding reliable strategies able to predict whether a patient with sepsis will develop ARDS .

The Solution

The present invention is focused in solving this particular need though the determination of a serological profile related to immunogenic cell death related to tissue damage caused by COVID19 sepsis +/- that pose a risk of respiratory distress.

The method is made by an autoantibody immunoassay using 2 to 6 particular recombinant human proteins and patient blood samples.

The technology allows to predict and diagnose the tissue damage profile of the patient and correlates it directly with prediction, evolution and resolution of ARDS process and the sequelae of tissue damage associated with the infection with an AUC > 0.83.

In a single miniaturized trial, the assay allows stratification of patients and treatment adjustment.

Innovative Aspects

This type of test would bring the opportunity to:

1. Early detection of ARDS for COVID19 patients with a minimally invasive test from blood samples.
2. Perform a realiable multiplex assay, quick and easy to perform.
3. Quickly identify and stratify patients to treat them accordingly.

The IVD can be easily implemented to be performed in health services' currently available devices.

Stage of Development:

The method is currently being validated by the research group in a bigger cohort of patients arriving though emergency services at hospitals.

Y/N?

Intellectual Property:

• Priority European patent July2021

Aims

Looking for companies to develop the IVD thought licence or collaboration agreements.

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