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CHRONIC FATIGUE SYNDROME AND "BRAIN FOG" ARE ASSOCIATED WITH HYPOPERFUSION AND PERSISTENT BIOCLOTS.

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Aguirre-Chang, Gustavo and Trujillo Aurora. ResearchGate. September 28, 2021.

Clots and hypoperfusion occur in Acute and Chronic COVID.

There are multiple studies in which it has been shown by autopsies and pathological anatomy examinations that in patients who develop advanced and persistent stages of COVID-19, clots or thrombi occur in the lungs and various other organs.

In patients with Acute and Chronic COVID who undergo HELP Apheresis (Heparin-induced Extracorporeal LDL precipitation), Hemoperfusion, and other similar procedures, clots are seen in the drawn blood and these often become attached to the catheters and filters used in these procedures.

The presence of clots in the bloodstream causes a decrease in perfusion in the tissues, which is called tissue hypoperfusion.

Symptoms associated with Hypoperfusion.

As mentioned, the increased presence of clots and a state of hypercoagulability at the level of the blood vessels (intravascularly) will frequently cause patients to present hypoperfusion and symptoms associated with this condition. Tissue hypoperfusion implies a lower contribution of oxygen and nutrients to the tissues, although there is no obvious damage to the tissues, the normal functioning of the organs and systems is affected, especially those that require a greater contribution of oxygen and nutrients, which are mainly the musculoskeletal system, the brain and the lungs, so that in a state of hypoperfusion it will produce its own symptoms that correspond to these organs and systems.

Chronic fatigue associated with tissue hypoperfusion.

The persistent presence of hypercoagulability and blood clots causes tissue hypoperfusion, affecting the normal functioning of the muscles when they are subjected to greater demands.

The patient has fatigue, weakness and/or muscle pain associated with exertion, because due to hypoperfusion he does not receive the required supply of oxygen and nutrients to be able to perform greater physical activity.

In the upper and lower extremities there may also be numbness, tingling, hypersensitivity, pain when waking up after resting, and other symptoms associated with tissue hypoperfusion.

"Brain Fog" associated with Hypoperfusion.

At the brain level, tissue hypoperfusion would be the main cause of the so-called brain or mental fog, characterized by a decrease in cognitive functions, with a lower capacity for concentration and attention, decreased memory and other neurological disorders.

Research should be directed at the intravascular level and no longer overemphasize the role of the immune response.

For decades, research on Chronic Fatigue Syndrome has been directed primarily to the role of the immune response, with little being obtained from research at this level. We

consider that this is because, instead of investigating the responses of the body or the effects or consequences, what should be investigated are the causes or triggers that generate these responses.
Since it is found that chronic fatigue is associated with hypoperfusion, investigations should be directed at the intravascular and vascular level, which is where a persistent inflammation of the endothelial cells and a hypercoagulable state are observed.

Bioclot formation.
Our hypothesis, based on clinical observation, applied Therapeutic Tests and published publications, is that in several of the persistent intracellular infections a “favorable environment” is produced at the intravascular level that serves as protection and favors the persistence of intracellular microorganisms *(1)*. Over time, clots are formed that develop to fulfill functions similar to those called biofilms, and that is why we have called them Bioclots *(2)*.

Increased presence of clots in the bloodstream of patients with SARS CoV-2 infection.
It has been identified that, in the SARS Cov-2 infection there is a severe inhibition and even the shutdown or stop of physiological fibrinolysis, that is, of the thrombolytic mechanisms of the organism that prevent the clots that form from persisting *(3)*. As the lysis or breakdown of the clots does not occur, they persist as components of the patient's blood, in turn causing a decrease in the perfusion of the body's tissues (tissue hypoperfusion).
These findings are also mentioned in the literature that occurs in other infections caused by microorganisms that cause a persistent intracellular infection *(1)*.
In this regard, we have published a publication in which we explain that these persistent Bioclots serve as a refuge and protection function for intracellular microorganisms, in a similar way to how biofilms do *(2)*.

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