

HYPERBARIC O2

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Chronic Fatigue Syndrome FMS

The etiology of CFS is still not entirely clear, and has been suggested as an infection in its own right, or as the sequel to other infections or neuro-toxic insults: notably Epstein Barr Virus (EBV) and allergic reaction to a number of substances including, but not limited to silicone, chemical crop sprays, and petroleum products.

In any event, the mechanism in physiology which causes the symptoms of chronic fatigue is insufficiently understood but can be explained by the following hypotheses or postulate which is put forward on the basis that it explains both the mechanism and the therapy. Muscular and other cellular activity requires energy, and this in turn requires glycolysis which relies upon the burning of blood carried sugars with blood carried oxygen. The release of energy by this chemical process produces wasted chemicals, notably lactates, and these in turn impose the symptoms of Fatigue until they are fixed and removed by the same blood chemistry. This is the Krebb's cycle normal to all life. In the ordinary way, oxygen is transported to the body cells by this chemical cycles in which it combines with hemoglobin in the erythrocytes of the blood stream, and the same chemical (HGB) also removes and fixes the waste lactates for disposal as carbon dioxide into the pulmonary system. In order to flow through the venous system, erythrocytes (RBC's) must be deformable in that they are larger in diameter than the veins in which they must travel. This is to ensure that a maximum surface contact area is available. In cases of Chronic Fatigue, either the internal pressure in the RBC's, or in a percentage of them, is elevated, or the permeability of their cell walls is lowered, or both. The result is that these RBC's are not able to deform and travel in the micro-circulatory system. This deprives the cells of oxygen, and allows accumulated lactates to produce the symptoms of Chronic Fatigue.

CONCLUSIONS:

The hypothesis can be supported in that if you exhaust a fit subject, his or her RBC's will behave as above roughly in the same percentages as the subjects proportionate fatigue but will recover to normal as the subject recovers.

The Chronic Fatigue patient's blood on the other hand will remain abnormal in this aspect, and the patients will remain fatigued.

TREATMENT:

Hyperbaric oxygen therapy at 2.4 ata produces an increase elasticity in the RBC's and at the same time seems to reduce the Delta P between their contents and the surrounding medium. There is also a probability that the dissolved oxygen in the plasma may oxidize whatever substance is the responsible for the decrease in RBC cell wall permeability. Certainly, the immediate effect of hyperbaric oxygen therapy is to relieve the cellular hypoxia that is a feature of chronic fatigue syndrome. Sixty minutes of treatment every day for five days followed by weekly treatments prn seems to resolve them completely in the majority of patients, and eventually to resolve them completely.