

Low Blood Iron Levels May Be a Good Prognostic Factor for Novel Coronavirus

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It is necessary to approach the Novel Coronavirus (COVID-19) a brand new way because treatment complications growing more and more such as high pressure ventilation related pneumothorax.

We are doing something wrong when giving high flow oxygen treatment.

Although there is enough oxygen in the blood, COVID-19 patients are desaturated eventually. It seems like lung cells cannot use oxygen. Oxygen transport mechanism tied at the cellular level. There is a huge lack of cellular oxygen in COVID-19 patients and finally they are diagnosed with post hypoxic leukoencephalopathy due to deep and long hypoxia¹⁾.

Hemoglobin carries four hem groups, let's call these groups the iron cages, oxygen is attached to this iron cages where they are carried to the lung, with this way, virus obtains safe passage to conquer the whole body.

COVID-19 virus bounds to iron cages and this pathological binding end up with iron liberalization. Excess free iron ions directly increase cytokines which are related to high mortality rate. Erythropoietin is secreted together with the collapsed hem and the blood hemoglobin levels starts to rise but contradictiously hemoglobin cannot carry oxygen. By this time the free iron continues to cell necrosis with oxidative stress²⁾.

People with iron deficiency anemia have less prone to COVID-19 infection and have lower mortality rates. COVID-19 results in remarkably high ferritin levels which represents a negative prognostic factor. Iron chelation, with deferiprone or deferoxamine, has been proposed in COVID-19, these treatments reduce viral replication and pro-inflammatory pathway²⁾.

Not only the female mortalities are lower to male but also female mortality rates from COVID-19 is very low compared to countries like India, Pakistan and some African Countries where more than half of the

women are anemic and also beta thalassemic heterozygote anemic population prevalence is correlated to natural immunity against COVID-19³⁾.

So we might hypothesized that if there is more hemoglobin then there are more free iron ions from the dissociation of hemoglobin and mortality due to COVID-19 eventually rises.

Although not fully understood, hydroxychloroquine prevents the virus from persecuting the hemoglobin, it might be achieving by lowering the blood pH, just as it does to prevent hemoglobin degradation in malaria infected erythrocytes. Hydroxychloroquine reduce the viral load and hemoglobin's hem group do not separated from its functional origin⁴⁾.

COVID-19 pandemic solution may be hiding in the hem groups of erythrocytes.

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