1. Vitamin B12 Deficiency in COVID-19 Recovered Patients: Case Report

https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/en/covidwho-934728?fbclid=IwAR1Xsg51V4QfVZnOUPpTWOFblMhaayZgC6WZokL8kVFwUS_U51n2er37VeE

2. https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/vitamin-d-and-b12-levels-a-clue-to-severity-of-respiratory-covid-19-covid-19/?fbclid=IwAR3GfE7TNZSM4VPuf7TIZRRT2vRDJqJ4nw53T4H3SYshbx_ghJY95iCL0CY

NHS Health Research Authority

3. More recent studies @ https://www.lifestylesbybean.com/b-12-why-the-urgency

LifestylesbyBean.com

4. **B12 deficiencies increase fibrin.**

At the Alveolar Capillary (AC) membrane B12 and cofactor deficient pt's create a thicker Hyaline membrane. This image shows how fibrin affects ARDS, long-haul neurological manifestations, clotting, psych, and vessel involvement..

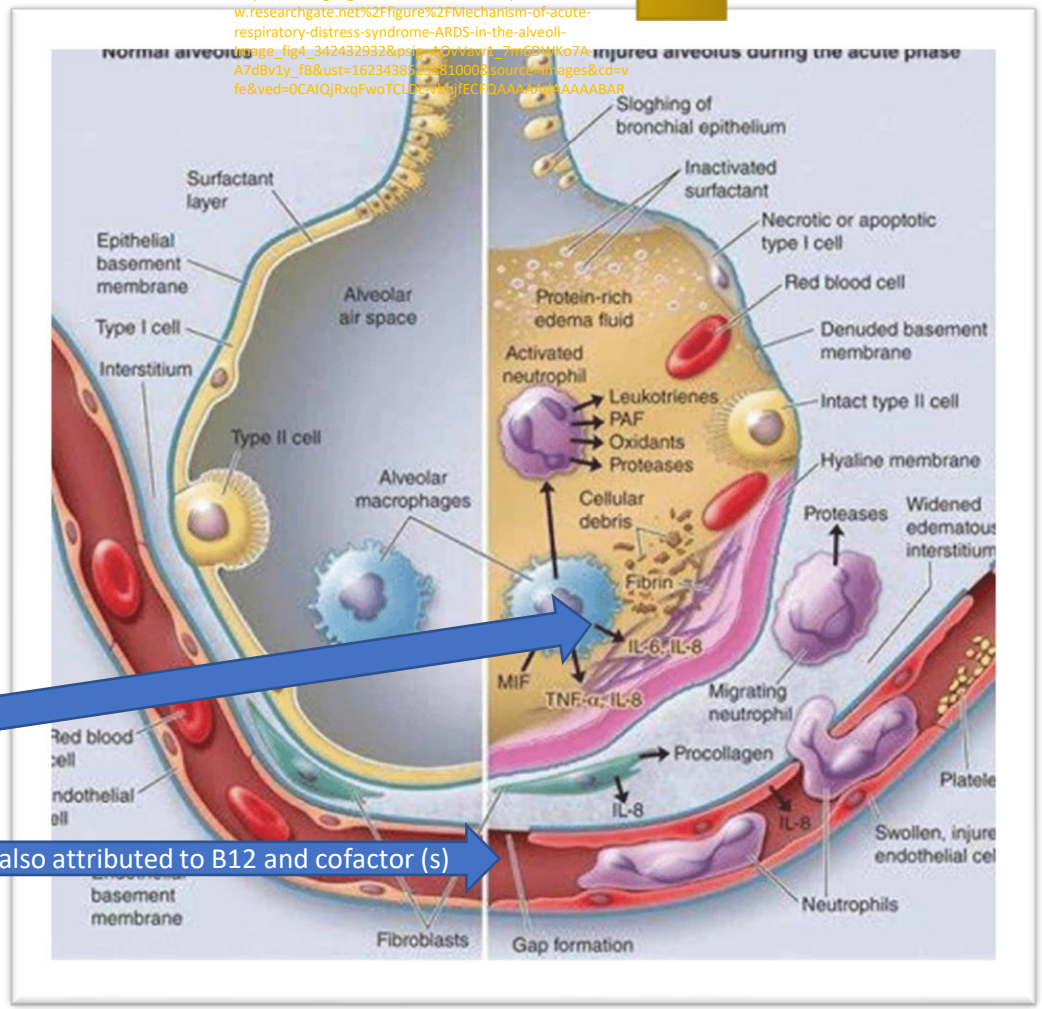
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5344667/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4901834/

https://www.sciencedirect.com/science/article/pii/S0306987720332655?via%3Dihub

Info for Health Care Practitioners -Fibrin formation and **COVID19 ARDS**

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.researchgate.net%2Ffigure%2FMechanism-of-acute-respiratory-distress-syndrome-ARDS-in-the-alveoli-fig4_342432932&psig=AOvVaw1_7mGDWKo7A-A7dBv1y_fB&ust=1623438[illegible]&source=images&cd=vfe&ved=0CAIQjRxqFwoTCLDc-vv[illegible]



Cellular level swelling also attributed to B12 and cofactor (s)