Optimal – The Podcast
April 15, 2020 Reference and Research Notes
Dr. Dicken Weatherby & Beth Ellen DiLuglio

COVID and Testing

ANTIBODY PROTECTION?

- **Duan**, K., Liu, B., Li, C., Zhang, H., Yu, T., Qu, J., ... & Peng, C. (2020). Effectiveness of convalescent plasma therapy in severe COVID-19 patients. Proceedings of the National Academy of Sciences. https://www.pnas.org/content/early/2020/04/02/2004168117

Coronavirus: low antibody levels raise questions about reinfection risk

- **Stephen Chen** in Beijing Published: 10:00pm, 7 Apr, 2020 Updated: 6:28am, 8 Apr, 2020 https://www.scmp.com/news/china/science/article/3078840/coronavirus-low-antibody-levels-raise-questions-about

CAUTION re: Antibody Dependent Enhancement (ADE)

- Tetro JA. Is COVID-19 receiving ADE from other coronaviruses? Microbes Infect. 2020 Mar;22(2):72-73. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7102551/

Mutations could hamper vaccine development

- "Small mutations would be expected with any virus," Macciochi said. "The ***emerged mutation in this report appears to reduce binding to ACE2 meaning less virulence which could potentially mean less ability to infect."***
- **IBT** https://www.ibtimes.com/coronavirus-throws-curveball-new-mutation-can-make-current-vaccine-research-futile-2958659
- **Newsweek** https://www.newsweek.com/coronavirus-mutation-study-covid-19-1497745

Inflammation is key

IL-6 peaks associated with severity of pulmonary complications

- **Russell** B, Moss C, George G, et al. Associations between immune-suppressive and stimulating drugs and novel COVID-19-a systematic review of current evidence.

Ecancermedicalscience. 2020 Mar 27;14:1022.
https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/32256705/

Blood purification to manage cytokine storm

- **Ma** J, Xia P, Zhou Y, et al. Potential effect of blood purification therapy in reducing cytokine storm as a late complication of critically ill COVID-19. Clin Immunol. 2020 Apr 1;214:108408. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7118642/.

COVID and Vitamin D

- Grant WB, Lahore H, McDonnell SL, et al. Evidence that Vitamin D Supplementation Could Reduce Risk of Influenza and COVID-19 Infections and Deaths. Nutrients. 2020 Apr 2;12(4). https://www.mdpi.com/2072-6643/12/4/988/htm

African Americans have been severely affected by severe COVID19… could vitamin D insufficiency and reduced production be associated with compromised immunity?

- **Harris** SS. Vitamin D and African Americans. J Nutr. 2006 Apr;136(4):1126-9. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.499.2261&rep=rep1&type=pdf
- **Egan** KM, Signorello LB, Munro HM, Hargreaves MK, Hollis BW, Blot WJ. Vitamin D insufficiency among African-Americans in the southeastern United States: implications for cancer disparities (United States). Cancer Causes Control. 2008 Jun;19(5):527-35.
- **Signorello** LB, Shi J, Cai Q, et al. Common variation in vitamin D pathway genes predicts circulating 25-hydroxyvitamin D Levels among African Americans. PLoS One. 2011;6(12) https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/22205958/

COVID and Vitamin C

Clinical trial of high dose IV vitamin C for COVID-19

- **Carr** AC. A new clinical trial to test high-dose vitamin C in patients with COVID-19. Crit Care. 2020 Apr 7;24(1):133 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7137406/

IV vitamin C in trauma, ARDS, ICU

- **Carr** AC, Maggini S. Vitamin C and Immune Function. Nutrients. 2017 Nov 3;9(11). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5707683/

Optimal intake of vitamin C?

- Intake of ~400 mg/d, a homeostatic state is reached with maximal plasma steady-state concentrations of ***~ 1 - 1.6 mg/dL 60 to 90 µmol/L*** **Lykkesfeldt** https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3884093/

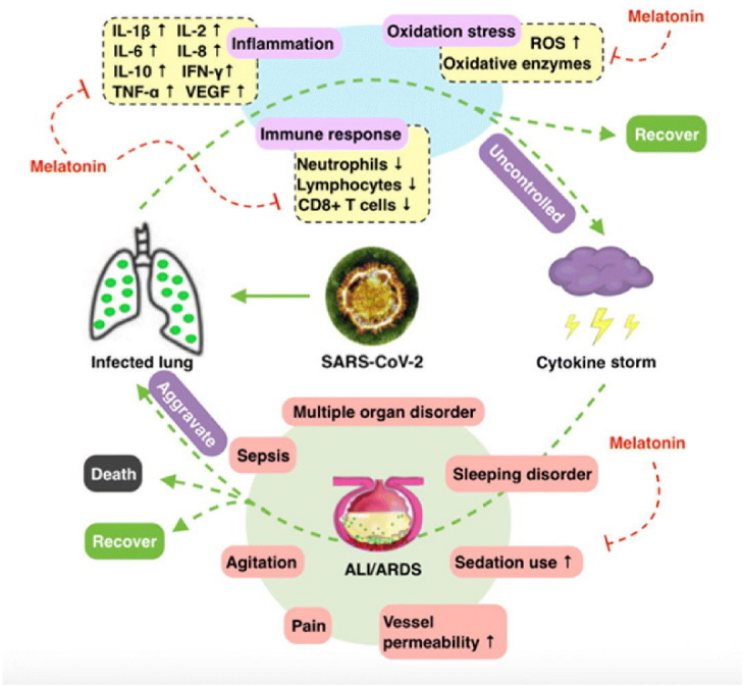
IV vitamin C trials in cancer patients:

- **Mikirova** N, Casciari J, Rogers A, Taylor P. Effect of high-dose intravenous vitamin C on inflammation in cancer patients. J Transl Med. **2012** Sep 11;10:189. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3480897/

COVID and Melatonin

Melatonin adjuvant treatment in COVID19 ?

Putative pathogenesis of COVID-19 and potential adjuvant use of melatonin.



Zhang R, Wang X, Ni L, et al. COVID-19: Melatonin as a potential adjuvant treatment. Life Sci. 2020 Mar 23;250:117583 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7102583/