



Medications Of Interest in COVID-19

Version 10.13.20



IVIG

- › medRxiv.org non peer reviewed n=33
- › Mortality—Not statistically significant
 - IVIG- 6%
 - Non-IVIG 18%
- › Progression to ventilator
 - >50% non IV IG
 - 14% in IVIG
- › LOS reduction
 - On average 8 days shorter stay in IVIG group



Vaccine Updates

- › [The New England Journal of Medicine; September 29, 2020. DOI: 10.1056/NEJMoa2028436](https://doi.org/10.1056/NEJMoa2028436)
- › mRNA-1273 (Moderna), Phase 1 trial n=40 of adults 56-71+
- › 25mcg & 100mcg doses, both elicited immune responses
- › Similar results to younger study participants
 - CD4 cytokines and Type 1 helper T cells
- › 100mcg results validated safety to move forward for Phase 3 trial



Vaccine Updates

- › AZD1222 2 dose vaccine (Astra Zeneca) Oxford1
 - Unique MOA uses a viral vector to deliver virus protein
- › Phase III -on hold in US pending review of prior vaccine trials
 - evaluating neurological inflammation
- › Phase II trials
 - N=1086
 - Rapid antibody response at 14 and 30 days
 - › Maintained at 60 day recheck
 - High % of pain at injection site
 - › 67% pain, 83% injection site tenderness, 18% fever
 - › Acetaminophen recommended prior to injection



Vaccine Storage & Misc

- › BNT-162b2 (Pfizer) –Store/transport at (-94 F).
 - May be at fridge temp for up to 5 days
 - Single dose vaccine
 - Per company literature may be ready by end 2020 @ 10-30mcg dose
- › mRNA-1273 (Moderna) Store/ transport at (-4 F)
 - 2 dose vaccine day 1 & 28

MATH + Hospital Tx Protocol for COVID-19

MATH+ HOSPITAL TREATMENT PROTOCOL FOR COVID-19

Intravenous **M**ethylprednisolone
High Dose Intravenous **A**scorbic Acid (Vitamin C)
Thiamine (Vitamin B1)
Low Molecular Weight **H**eparin
+
Statin - Zinc - Vitamin D - Famotidine - Melatonin - Magnesium

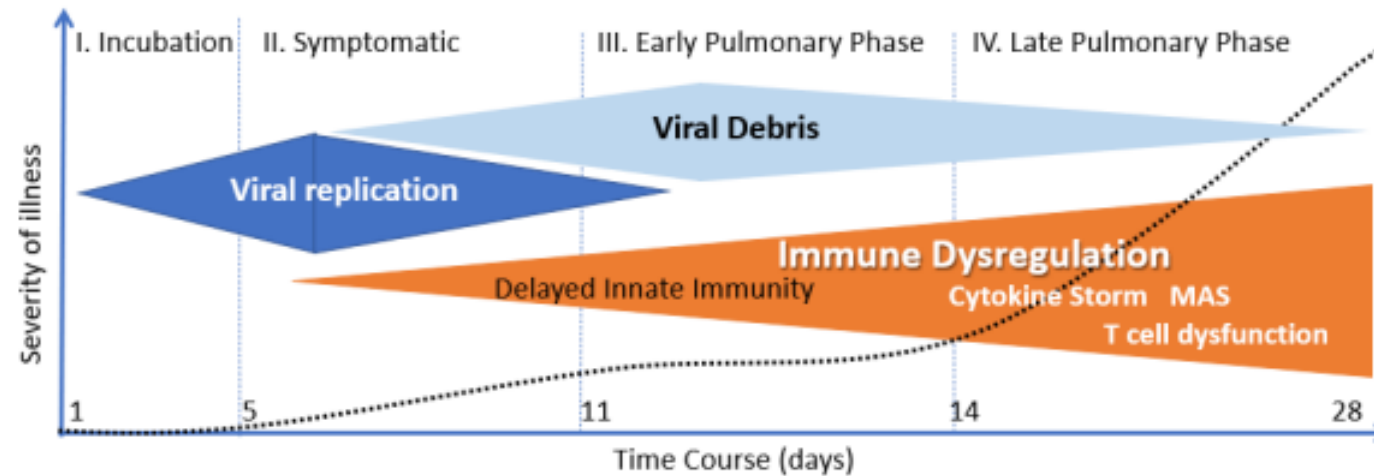
FLCCC
ALLIANCE

Front Line Covid-19
Critical Care Alliance

www.covid19criticalcare.com

MATH+ Suggested course of therapy

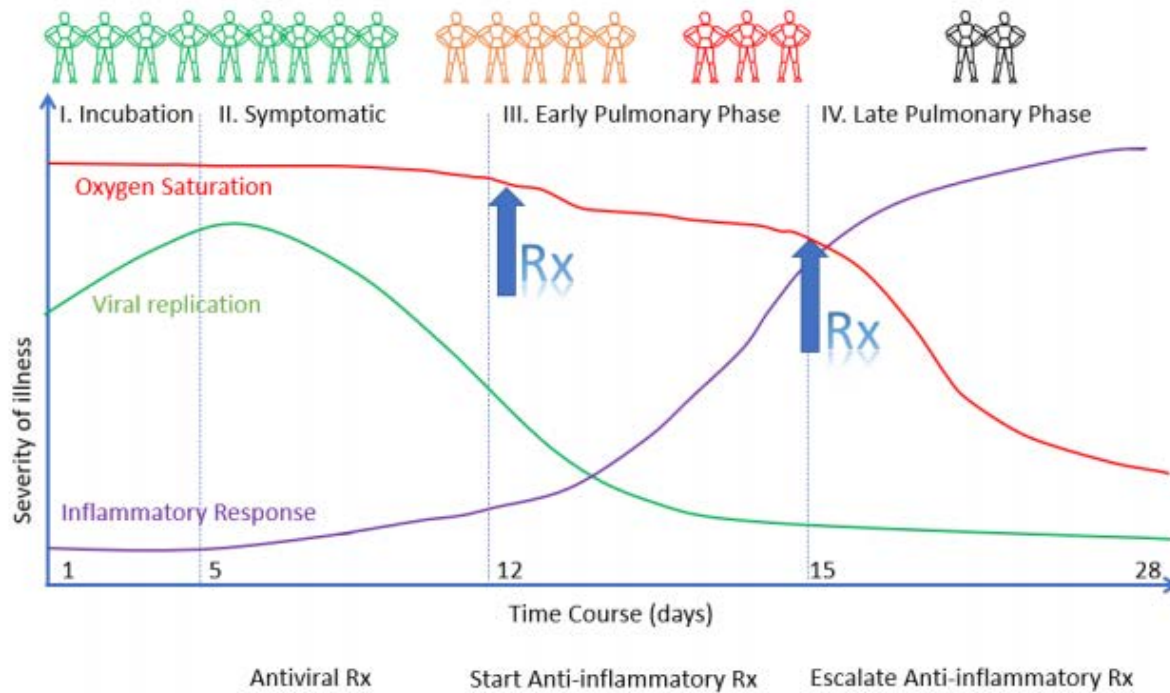
Figure 1. The course of COVID-19 and General Approach to treatment



Ground-glass infiltrates	+		++		+++		++++	
Clinical Symptoms	Fever, malaise, cough, headache, diarrhea		SOB – Mild hypoxia ≤4 L/min N/C & aSat < 94%			Progressive hypoxia		
Treatment approach	Antiviral Rx		Anti-inflammatory Rx					
Potential therapies	? Ivermectin		Methylprednisolone 40mg q 12 inc. to 80 mg q 12 if reqd.					
	? Interferon-α		Enoxaparin 60 mg/day			Enoxaparin 1mg/kg s/c q 12		
	Remdesivir (IV)							
	Vitamin C 500mg PO BID		Vit C 500-1000 mg PO q 6			Vitamin C 3g IV q 6		

MATH—Timing of steroid is paramount!!

Figure 2. Timing of the initiation of anti-inflammatory therapy





Role of Pioglitazone in COVID 19

- › [Clinicaltrials.gov](https://clinicaltrials.gov)
- › COVID 2 Phase illness
 - Phase 1 fever-myalgias etc (mild symptoms most experience)
 - Phase 2- dangerous cardiac and pulmonary changes (few experience)
 - › High expression of IL-6 & overactive macrophage
 - 1/3 of these originate from adipose tissues
- › Pioglitazone increases ACE-2 expression in animal studies
 - Shows protection to ARDs in rats secondary to adipose stabilization
- › No results available until March 2021
 - Studied dose pioglitazone 30mg daily



Presidential COVID treatment. Was it justified?

› Dexamethasone

- O2 sats hit 93% X2 within 48 hours of positive test
- June study indicated that dexamethasone reduced death risk by 33% for prolonged illness and on a ventilator. No impact on mild or moderate disease.

› Remdesivir (KKA-Veklury)

- Started Oct. 2nd for a 5 day course
- Studies indicated a 30% faster recovery than placebo
- Outcome data on survival still lacking



- › REGN-COV2—aka monoclonal antibodies
 - Still in testing phases (REGENERON & ELI LILLY et al)
 - Received an 8gram dose (highest recommended)
 - Sept news release indicated that early tx was better due to less antibodies circulating
 - These are synthetic antibodies created from recovered patients
 - Developed in part to \$450 million grant from Operation Warp Speed
- › Zinc
 - In theory zinc boosts the immune system
 - No controlled trial data shows benefit from COVID 19



› Vitamin D

- No direct evidence Vitamin D helps w/ COVID19
- Observational studies of population data have trended toward Vitamin D deficient populations have worse COVID outcomes

› Famotidine

- New York hospital observed that H2 blocker helped patients however its study fell short in recruiting so power of data was weak

› Melatonin

- Thought is obese diabetics may benefit in COVID
- No supporting data

› Aspirin

- Anti platelet therapy may reduce clotting
- COVID 19 causes hyper coaguable state



Finally something good COVID brings us

- › COVID-19 is possibly creating new ways to treat pain
 - Research has found that COVID (+) patients have less pain transmission
 - The virus affects ACE-2 and a new receptor NEUROPIILIN-1
 - › VEGF-A binds to neuropilin-1 causing pain transmission
 - › COVID-19's spike protein binds VEGF-A in the same location
 - This is thought to cause a reversal in pain signaling
 - Research underway to create small molecule therapeutics against neuropilin
 - › This could help prevent COVID infection
 - › This could be a future treatment modality for chronic pain

Pain relief caused by SARS-CoV-2 infection may help explain COVID-19 spread [News Release] Tucson, AZ; October 1, 2020. <https://www.sciencedaily.com/releases/2020/10/201001155912.htm>