

Pathophysiological Basis and Rationale for Early Outpatient Treatment of SARS-CoV-2 (COVID-19) Infection

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Specialties

Internal Medicine
Critical Care
Nephrology
Cardiology
Electrophysiology
Infectious
Diseases
Ophthalmology
Epidemiology
Biostatistics

ABSTRACT

Approximately 9 months of the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2 [COVID-19]) spreading across the globe has led to widespread COVID-19 acute hospitalizations and death. The rapidity and highly communicable nature of the SARS-CoV-2 outbreak has hampered the design and execution of definitive randomized, controlled trials of therapy outside of the clinic or hospital. In the absence of clinical trial results, physicians must use what has been learned about the pathophysiology of SARS-CoV-2 infection in determining early outpatient treatment of the illness with the aim of preventing hospitalization or death. This article outlines key pathophysiological principles that relate to the patient with early infection treated at home. Therapeutic approaches based on these principles include 1) reduction of reinoculation, 2) combination antiviral therapy, 3) immunomodulation, 4) antiplatelet/antithrombotic therapy, and 5) administration of oxygen, monitoring, and telemedicine. Future randomized trials testing the principles and agents discussed will undoubtedly refine and clarify their individual roles; however, we emphasize the immediate need for management guidance in the setting of widespread hospital resource consumption, morbidity, and mortality.

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KEYWORDS: Ambulatory treatment; Anticoagulant; Anti-inflammatory; Antiviral; COVID-19; Critical care; Epidemiology; Hospitalization; Mortality; SARS-CoV-2

US/Italian Multicenter Collaboration

Academic Medical
Centers
Public Health
Integrated Health
Systems
Community
Practice
Biotech Industry

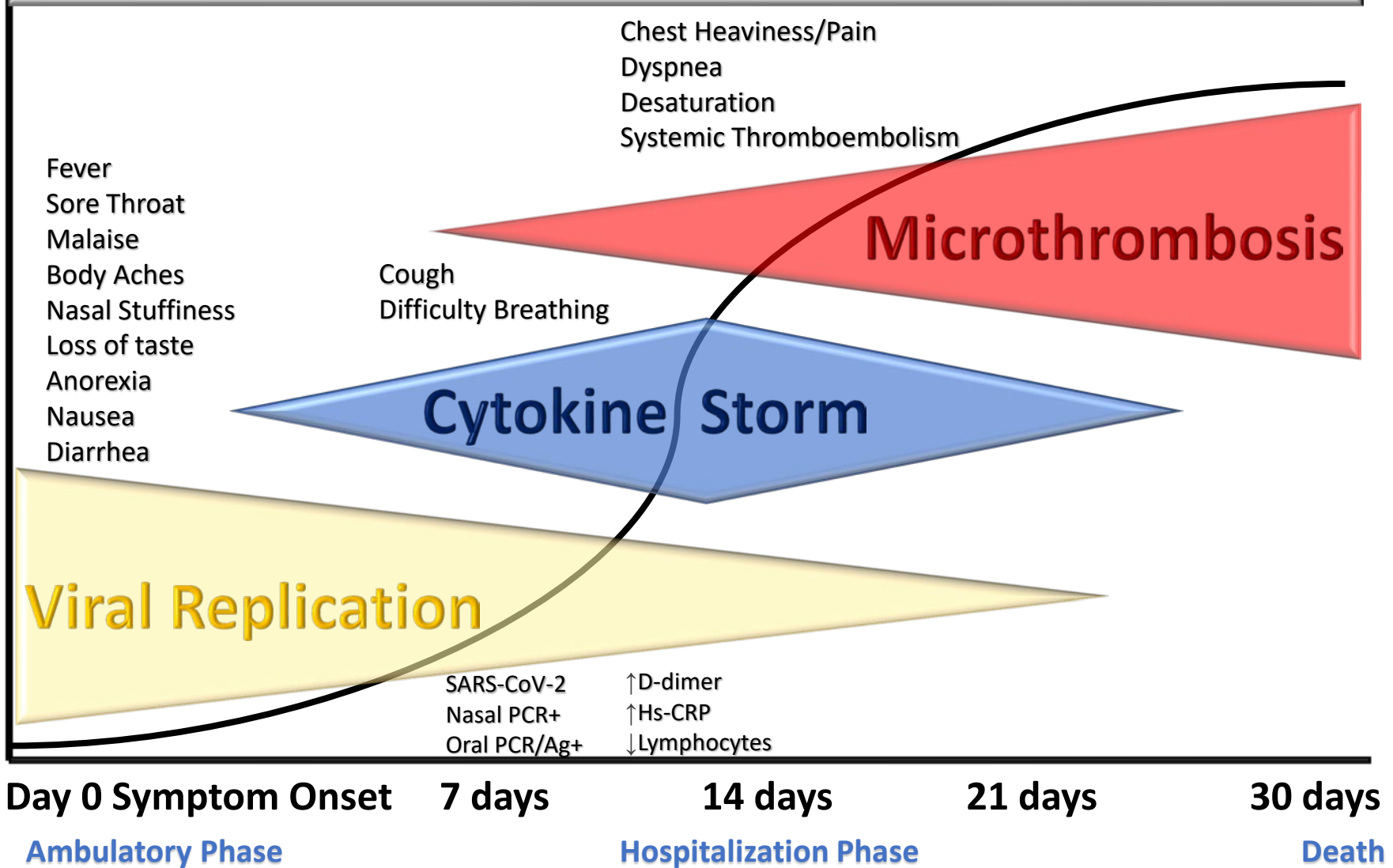
Off-Target Antivirals

McCullough PA, Fourth-Quarter 2020 COVID-19 Drug and Diagnostic Developments A Virtual Conference Monday, November 2nd 2020, 9:00am - 6:00pm CET McCullough PA Proc (Bayl Univ Med Cent). 2020 (in press)

Corticosteroids

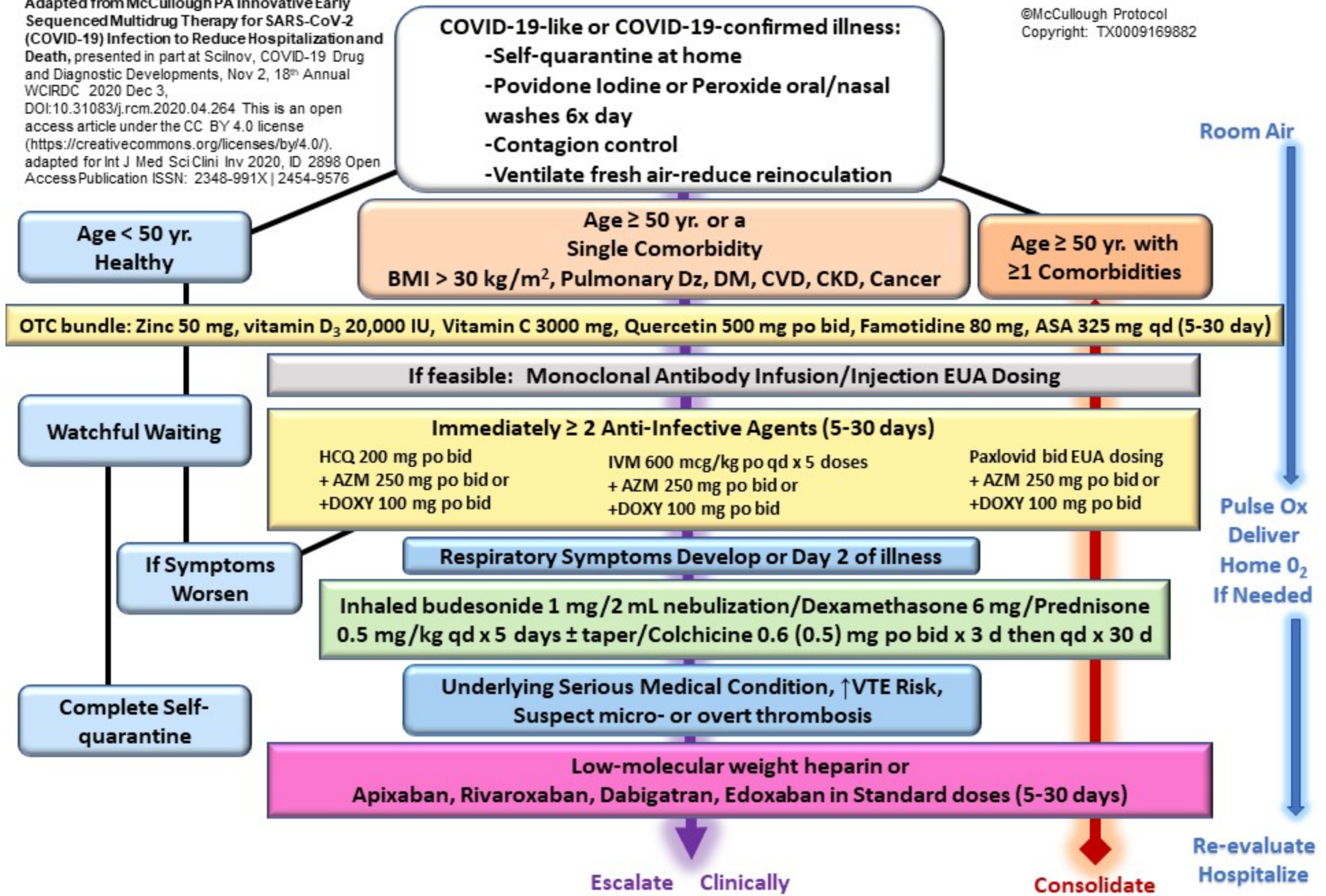
Antiplatelet Drugs/Antithrombotics

Untreated Mortality Risk



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BMI=body mass index, Dz=disease, DM=diabetes mellitus, CVD=cardiovascular disease, CKD=chronic kidney disease, yr=years, HCQ=hydroxychloroquine, AZM=azithromycin, DOXY=doxycycline, IVM=ivermectin, VTE=venous thrombo-embolic, EUA=Emergency Use Authorization (U.S. administration)