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AHA guidelines for CPR during COVID-19 outbreak

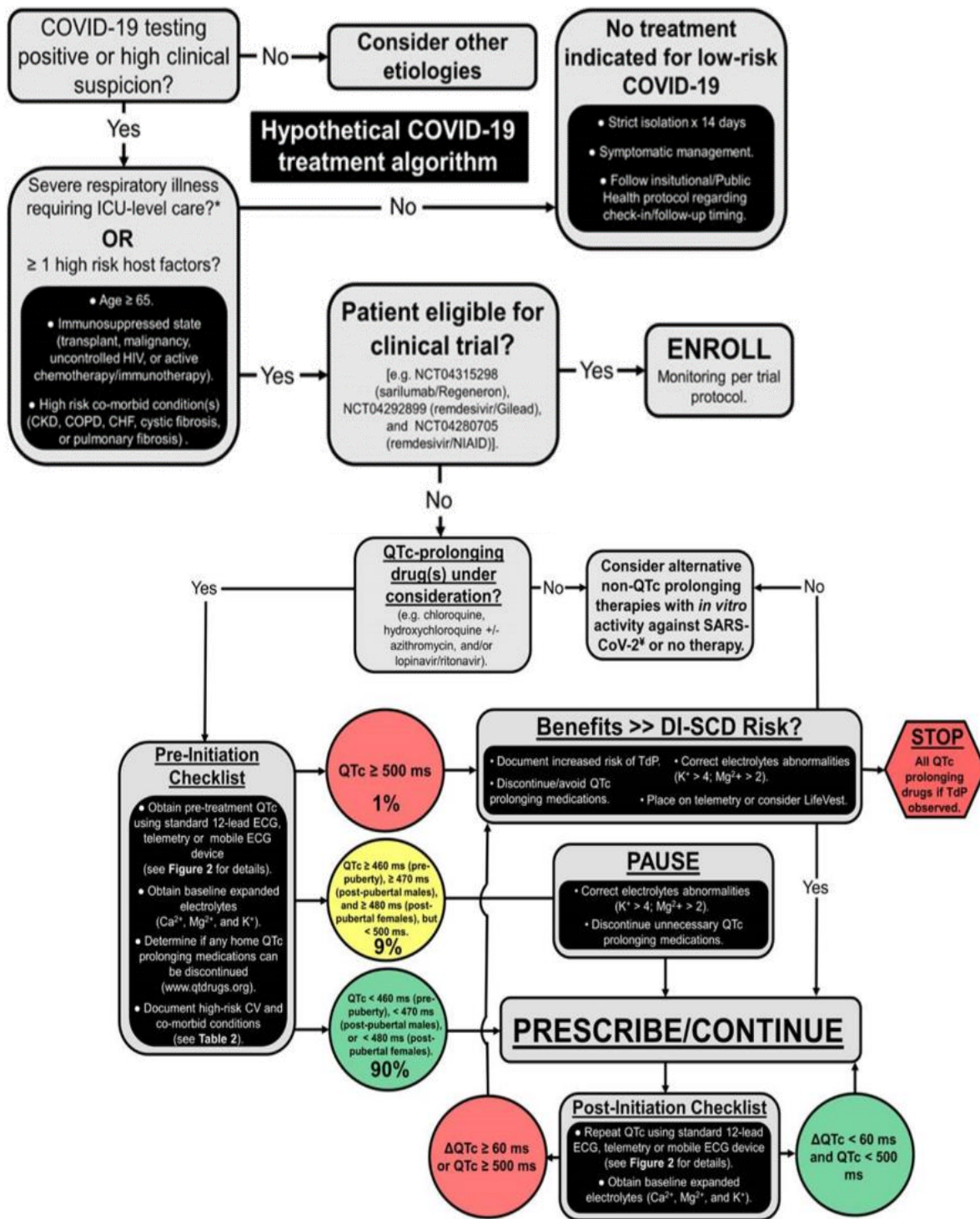
- CPR is an aerosol-generating procedure
- Ideally, should be performed in negative pressure, single patient room with door closed
- Number of healthcare providers should be minimized, and all should be wearing N95/PAPR, eye protection, gowns, gloves
- Rapid-sequence intubation should be pursued ASAP for acute respiratory failure
- If unavoidable, bag-valve-mask should have HEPA filters
- **Perspective** (by K Saliccioli MD): Many of these recommendations will become impractical as hospitals experience surges, but appropriate PPE for those involved in performing CPR should be absolutely non-negotiable, even if it means initiation of CPR is delayed. The use of automatic compression devices is not discussed but should be considered. Additionally, these are recommendations for 'known or suspected COVID-19' patients, but given the suspected high prevalence of asymptomatic disease, these precautions should be considered for CPR without an obvious primary cardiac etiology.

Guidance for use of QTc-prolonging medications in treatment of COVID-19

- Given significant QTc prolonging potential of chloroquine, hydroxychloroquine, and azithromycin – especially in combination – screening ECG should be done prior to any therapy initiation
 - While genetic LQTS is rare (~1 in 2000), expected large numbers of COVID-19 patients translates to high absolute #
- For medium and high risk (yellow/red on chart below), discussion and documentation of risk of Torsades and SCD are necessary prior to initiation of therapy
- For initial ECG as well as follow ups, try to identify single ECG machine and minimize technicians – using telemetry can decrease need for frequent ECGs as risk of QTc >460ms is exceedingly low if QT is <1/2 RR interval
- Inpatient monitoring recommendations:

Ongoing monitoring, dose adjustment and drug discontinuation

- a. Place on telemetry prior to start of therapy.
 - b. Monitor and optimize serum potassium daily.
 - c. Acquire an ECG 2-3 hours after the second dose of hydroxychloroquine, and daily thereafter.
 - d. If QTc increases by >60 msec or absolute QTc >500msec (or >530-550 msec if QRS >120 msec), discontinue azithromycin (if used) and/or reduce dose of hydroxychloroquine and repeat ECG daily.
 - e. If QTc remains increased >60 msec and/or absolute QTc >500 msec (or >530-550 msec if QRS >120 msec), reevaluate the risk/benefit of ongoing therapy, consider consultation with an electrophysiologist, and consider discontinuation of hydroxychloroquine.
- Smartphone ECG with Kardia received urgent FDA approval for QTc monitoring – implementation can be considered to minimize staff exposure when possible or for use in outpatient monitoring
 - Based on:
 - Mayo Clinic Proceedings (source of flowsheet) https://mayoclinicproceedings.org/pb/assets/raw/Health%20Advance/journals/jmcp/jmcp_covid19.pdf
 - Cardiology Magazine (source of inpatient monitoring recommendations) <https://www.acc.org/latest-in-cardiology/articles/2020/03/27/14/00/ventricular-arrhythmia-risk-due-to-hydroxychloroquine-azithromycin-treatment-for-covid-19>



Summary of existing data relating COVID-19 and cardiovascular disease

- CV comorbidities are common in patients with symptomatic COVID-19
- CV comorbidities are associated with poorer outcomes
- No evidence to support stopping ACE-I/ARB, but would not initiate new therapy with them at this time
- Heart transplantation is extremely complicated currently, with plans/goals continuing to evolve
- JournalScan summary and link to *Circulation* article: <https://www.acc.org/latest-in-cardiology/journal-scans/2020/03/26/10/59/coronavirus-disease-2019-covid-19-and-cvd>