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**MASSACHUSETTS
GENERAL HOSPITAL**

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Obtain Baseline ECG on all patients with COVID-19

A: Keep K and Mg replete **B:** Ideally discontinue all unnecessary QT prolonging drugs

Normal Baseline QT
(QTc < 470 ms)

Marginal Baseline QT
(QTc 470 – 500 ms)
Or history of long QT*

Abnormal Baseline QT
(QT > 500 ms)

Administer potential QTc
prolonging medication, if
recommended by guidance doc

Caution required

Do not administer QTc prolonging
medication, or carefully review and
document risk/benefit pre-initiation*

Obtain ECG 2-3 hours after 2nd dose
Telemetry per EP (see below)

If QTc remains < 500 ms
or increases by < 60 ms,
can continue regimen

If QTc prolongs to > 500 ms,
or increases by ≥ 60 ms,
stop or lower dose and
repeat daily until QTc
returns to < 500 ms

Notes:

- Adjust for baseline wide QRS: (QTc = QTc – (QRS – 100 ms)). For example, if the baseline QRS is 180 ms, a QTc of 570 ms translates to 490 ms [570 – (180-100)].
- High risk patients for development of *Torsades de Pointes*, who should be considered for continuous telemetry monitoring, including those with LV dysfunction (LVEF <40%)
- Must discontinue drug for any evidence of *Torsades de Pointes*
- Mobile cardiac telemetry available after discharge as of April 21, 2020, page "Holter Lab" page 2007 with MRN.
- * Consider cardiac arrhythmia consultation

Ventricular Arrhythmia risk & Hydroxychloroquine +/- Azithromycin Treatment for COVID-19

Utilizing QTc* measurements & cardiac telemetry

Guidelines for Inpatient Care:

1. Baseline

- a. Discontinue and avoid all other non-critical QT prolonging agents.
- b. Assess a baseline ECG, renal function, hepatic function, serum potassium and serum magnesium.
- c. Measure QTc, and seek pharmacy guidance in the setting of acute renal or hepatic failure. A cardiac arrhythmia service consultation (ECG review) is appropriate if there is doubt about the QTc measurement or history of LQTS (congenital or prior drug-induced).

2. Relative contraindications (merit frank conversation of risk : benefit)

- a. History of long QT syndrome, or
- b. Baseline QTc >500 msec (or >550 msec in patients with QRS greater than >120 msec)

3. Ongoing monitoring, dose adjustment and drug discontinuation

- a. Place on telemetry prior to start of therapy.
- b. Monitor and optimize serum Potassium & Magnesium daily.
- c. Acquire a reliable and consistent **telemetry lead** (frequently lead II or lead V5) to measure QT and measure 2-3 hours after the second dose of hydroxychloroquine, and twice daily thereafter.
- d. If QTc increases by >60 msec or QTc >500msec (or >550 msec if QRS >120 msec), discontinue azithromycin (if used) and/or reduce dose of hydroxychloroquine and continue rhythm monitoring.
- e. If QTc remains increased >60 msec and/or QTc >500 msec (or >550 msec if QRS >120 msec), reevaluate the risk/benefit of ongoing

therapy, consider consultation with the cardiac arrhythmia service, and consider discontinuation of hydroxychloroquine.

- f. If there is emergence of frequent PVCs (especially those occurring shortly after a preceding QRS complex), consider consultation with the cardiac arrhythmia service, and consider discontinuation of hydroxychloroquine.
- g. In particular, do not start anti-arrhythmic or other medications without checking for potential QTc prolonging effects

Note: * - For patients that have a HR<60 bpm (unlikely in this clinical scenario), the absolute QT measurement should be substituted for QTc in the guidelines above.

Modified from:

https://mayoclinicproceedings.org/pb/assets/raw/Health%20Advance/journals/jmcp/jmcp_covid19.pdf

<https://www.acc.org/latest-in-cardiology/articles/2020/03/27/14/00/ventricular-arrhythmia-risk-due-to-hydroxychloroquine-azithromycin-treatment-for-covid-19>