

April 14, 2020 COVID-19 Update

Compiled by Katherine Salciccioli MD



Contents include:

Brief summaries:

- Brazilian chloroquine study stopped early due to QTc prolongation
- Latest ACHA Webinar: “Two weeks later: COVID-19 update for the CHD patient”
- AHA patient handout: Women with cardiovascular disease

Articles reviewed:

- Considerations for Triaging Elective Cases in Children with Cardiac Disease in a Time of Crisis
- SARS-CoV-2, SARS-CoV, and MERS-COV: A comparative overview

Brazilian chloroquine study stopped early due to QTc prolongation

- Clinical trial looking at two different doses of chloroquine phosphate was stopped early in Brazil due to prolonged QTc and ventricular tachycardia leading to death
- Hospitalized adults with SIRS criteria, hypoxemia, and/or shock were included
- Standard dose (2.7g over 5 days) vs high dose (12g over 10 days) chloroquine were compared with study powered to detect 50% decrease in mortality – all patients also received azithromycin and ceftriaxone and 89.6% were also on Tamiflu; no placebo group was used due to ethical issues
- Within the high dose group, 25% of the first 40 patients enrolled in the arm developed QTc >500ms and 2 had fatal VT – NOTE 5/40 patient in the group were >75y
- Fatality rate (13.5%) was not different from historical rate of matched patients now using chloroquine (95% CI 14.5-19.2%)
- Author’s conclusion: high dose (12g over 10 days) chloroquine should not be used
- Perspective: small N (ended with 81/440 patients recruited) with diversity of illness severity and age, all patients also on azithromycin and many on oseltamivir, both of which also can prolong the QTc; a more appropriate conclusion might be that in the setting of other QT prolonging medications, high dose chloroquine is not the appropriate choice
- NOTE: this study has not yet been peer reviewed but was included as it has been discussed frequently in the media
- Preprint doi: <https://doi.org/10.1101/2020.04.07.20056424>

Two weeks later: COVID-19 update for the CHD patient – an ACHA webinar

- One hour webinar with target audience of CHD patients
- Brief science update on COVID-19
- Discussions about social distancing, other safety precautions
- Reiteration that CHD is thought to increase risk for severe complications from COVID-19, but that data is lacking overall
- Produced by ACHA team at OHSU
- <https://vimeo.com/403149610>

COVID-19 guidance for Women's Health - from the Women and Special Populations Committee of the AHA Council on Clinical Cardiology

- Data is not completely clear, but symptomatic cardiac disease appears to be higher risk than asymptomatic or well-controlled disease with respect to developing severe COVID-19
- Women are more likely to be caretakers – appropriate precautions should continue to be considered when possible
- Stress management is critical, especially for those with coronary disease
- Multiple links provided for different FAQs – related to pregnancy, diet, stress, telehealth options

Article Title:	Considerations for Triage Elective Cases in Children with Cardiac Disease in a Time of Crisis
Authors:	Gal DB and Char DS
Full Citation:	Gal DB and Char DS. (2020). Considerations for Triage Elective Cases in Children with Cardiac Disease in a Time of Crisis. <i>Circulation</i> . Published online 13 April 2020 at www.ahajournals.com . DOI: https://doi.org/10.1161/CIRCULATIONAHA.120.047087

Key points:

- Identifying emergent, urgent, and elective surgeries is relatively clear-cut for adults, but less so for children with congenital heart disease
- “Elective” cases in congenital heart disease are still necessary unlike many elective adult cases i.e. cosmetic procedures
- Given that the duration of postponing of elective cases is unclear in the setting of COVID-19, triaging ‘elective’ pediatric cardiac surgery cases is one approach to managing resource strain and rationing care
- Keys to this type of rationing for CHD include making decisions as groups to avoid individual biases and having clear, open communication with families to help them understand the situation and decision-making process
- Two methods CHD triage: (1) by greatest chance of survival and (2) by most urgent threat to life without intervention
- The authors argue to give priority to both: for example, (1) could be primary prevention ICD in teen who has high likelihood of survival and will use fewer resources and (2) a shunt-dependent interstage patient who requires timely intervention to prevent deterioration and ultimate use of more resources with lower chance of a successful outcome
- Ethical challenges: high risk patients where intervention does not guarantee a successful outcomes and multiple comorbidities will likely utilize significant resources for an extended period of time
- Expanded cooperation between heart centers nationally may allow increased timely availability for patients in areas of the country which are not as hard hit with COVID-19 and as a result have fewer limits on resources at a given time
- The authors recommend a triaging committee including clinicians, ethicists, and patient advocates be created to help with triage decisions; additionally, communication between committees nationally will be beneficial

Summary written by: Katherine B. Saliccioli MD

Topic Areas: COVID-19, congenital heart disease, rationing, ethics

Article Title:	SARS-CoV-2, SARS-CoV, and MERS-CoV: A comparative overview
Authors:	Rabaan AA1, Al-Ahmed SH2, Haque S3, Sah R4, Tiwari R5, Malik YS6, Dhama K7, Yatoo MI8, Bonilla-Aldana DK9, Rodriguez-Morales AJ10
Full Citation:	Rabaan AA, Al-Ahmed SH, Haque S, Sah R, Tiwari R, Malik YS, Dhama K, Yatoo MI, Bonilla-Aldana DK, Rodriguez-Morales AJ. <i>Infez Med.</i> 2020 Ahead Of Print Jun 1;28(2):174-184.

Key points:

- Understanding similarities and differences between COVID-19 and SARS, MERS will help with understanding the nature of infection or pathogenicity of the novel virus
- A comparative analysis of the recent SARS-CoV-2 outbreak with the previous coronavirus outbreaks can identify trends between viral characteristics can decrease the time to develop vaccines
- SARS-CoV-2 shares 79% genome with SARS, 50% genome with MERS; compared to SARS, S protein genome is similar but receptor binding motif is less so
- Key difference = the spike (S) protein: in SARS-CoV-2 (COVID-19 virus), S protein is longer AND the furin-like cleavage site helps with S protein priming and is likely the reason it is more efficient at spreading than with SARS or MERS
- Furin-inhibitors should be a key therapeutic and/or vaccine target

Table 1 - Characteristics of patients with SARS-CoV-2, SARS-CoV, and MERS-CoV.

	<i>Coronavirus</i>		
	<i>SARS-CoV-2</i>	<i>SARS-CoV</i>	<i>MERS-CoV</i>
<i>Epidemiology</i>			
Outbreak beginning date	December 2019	November 2002	April 2012
Location of the first case	Wuhan, China	Guangdong, China	Saudi Arabia
Confirmed cases	595,800 (Mar 27, 2020)	8096	2519 (From 2012 until January 31, 2020)
Mortality	27.324 (%)	744 (10%)	866 (34.4%)
Time to infect first 1000 people (Days)	48	130	903
Incubation period (Days)	7-14	2-7	5-6
Transmission	Touching or eating an infected, yet unidentified animal. Human-to-human transmission occurs through close contact.	Believed to have spread from bats, which infected civets. Transmitted mainly between humans through close contact.	From touching infected camels or consuming their milk or meat. Limited transmission between humans through close contact.

Summary written by: Jaclyn Foster, RN BSN

Topic Areas: COVID-19, SARS-CoV-2, MERS-CoV, spike protein