

AHA COVID-19 Clinical Guidance Series

Clinical Perspectives from China (with the Chinese Society of Cardiology)

CREATIVE BRIEF

BRAND STATEMENT: The American Heart Association is deeply concerned about the public health crisis facing our world. Our top priority regarding coronavirus (COVID-19) is the health and well-being of individuals and their families today and in the future, in every community, everywhere.

Our mission – to be a relentless force for a world of healthier, longer lives – is more important than ever.

PROJECT BACKGROUND: The American Heart Association is creating a podcast to reach the healthcare providers who need critical information about the emergency response to the COVID-19 pandemic in China as a means to inform urgent actions needed in the United States.

TARGET AUDIENCE: All healthcare providers but especially those on the front lines dealing with the COVID-19 pandemic. Others may also be interested in, and impacted by, this content, including scientists, healthcare administrators, policy makers and the general public.

OBJECTIVE: For listeners to have a better understanding of the challenges encountered by healthcare colleagues in China and to consider ways the experience of those on the front lines in a country that was earliest on the pandemic curve can inform, and hopefully improve, the response in the United States and other countries still battling the coronavirus.

KEY CONSUMER BENEFIT: Sharing of information can hopefully improve the response and lessen the impact of COVID-19 on the populations served by those watching this program.

TONE: **Urgent, Inclusive, Empathetic, Informative, Welcoming**

KEY ON-AIR CONTRIBUTORS:

HOST: **Dr. Mariell Jessup, Chief Science and Medical Officer of the American Heart Association**

EXPERT: **Dr. Shuyang Zhang, Professor of Cardiology, Vice President of Peking Union Medical College Hospital and Vice Chancellor of Peking Union Medical College**

RUN OF SHOW

SHOW OPEN (3 MIN) Dr. Mariell Jessup, Chief Science and Medical Officer of the American Heart Association

Q &A (15 min)

GUEST INTRO (30 SEC)

Dr. Shuyang Zhang, Professor of Cardiology, Vice President of Peking Union Medical College Hospital and Vice Chancellor of Peking Union Medical College

Q : What clinical presentation of the viral infection most surprised you? What is one thing you have learned taking care of these sick patients that you want most to share with doctors around the world?

A : Well, different doctors may have different opinion. Personally, after discussing with several pulmonologists and ICU doctors, we think the irreversible lung damage when COVID-19 patients have developed to critically ill has shock us. Some patients with hypoxia were treated starting from nasal oxygen, to High flow nasal cannula, non-invasive and invasive mechanical ventilation, and even ECMO within 2-3 weeks from symptom onset. But the progress of lung damage did not stop, and high mortality was observed. One thing to share is self-protection. Don't change your character from doctors to patients. You and other health providers are the mainstay of the country in the era of pandemic.

Q: We have read the papers coming out of China, and everyone wants to know: is hypertension alone, in the absence of other conditions or in the elderly, an enhanced risk factor for becoming infected?

A: In the absence of other conditions or in the elderly, there was no direct evidence to suggest hypertension as an independent risk for becoming infected. Hypertension, together with other pre-existing cardiovascular diseases may be a risk for patients developing severe or critically ill.

Q: Have you learned how to identify the patients who will subsequently develop myocarditis, or life-threatening arrhythmias?

A: Although myocardial injury, which means the elevation of cardiac troponin, is very common in critically ill patients. There is no direct evidence indicating that COVID-19 related viral myocarditis is one of the major causes of myocardial injury and death, since most patients had preserved left ventricular systolic function. We observed and analyzed several cases of ventricular fibrillation/ sudden cardiac arrest, and attribute these to various causes. 2 cases had previous severe coronary artery disease without revascularization. 1 case had severe hypoxia and sudden cardiac arrest when intubation. 1 case had significant hypokalemia and 1 case with hyperkalemia. So I would rather say, pre-existing CVD, severe hypoxia and electrolytes disorder are the three important risks.

Q: Are the doctors in China asking patients to stop their ACEi or ARBs or are the drugs only stopped if the blood pressure in individual patients becomes low?

A: The latter, in real world now. Most patients admitted in ICU when complicated with COVID-19, usually had hypotension and need inotropic and vasoconstrictive agents. We need to stop ACEI or ARBs. It has been a great concern or controversy on stopping usage of ACEI or ARBs in patients with hypertension and chronic heart failure, since it may increase ACE2 receptor on basic research. My personal opinion is that, daily usage of ACEI/ARBs might increase the possibility of novel coronavirus infection theoretically, but stopping usage may increase the risk of cardiovascular complications in patients with hypertension or heart failure. And for patients who already have confirmed COVID-19 for more than 3-4 weeks, it's not a big concern. Because most patients will have swab tests negative and develop antibody at that time.

Q: What about patients with previous strokes who are otherwise doing well-do they seem to have an increased risk of infection or of severe complications?

A: We don't think previous stroke alone, in the absence of other conditions (i.e. old age, hypertension, diabetes) is an independent risk of infection. But previous stroke might be a risk of confirmed COVID-19 patients to have severe complications and increases risk of death.

Q: There have been increasing reports of ST elevation on ECG along with LV dysfunction and negative angiography suggestive of viral myocarditis. Do you see any pathological evidence of direct myocardial viral entry and/or lymphocyte infiltration in cases of cardiac complications?

A: Firstly, no fulminant viral myocarditis was observed in our 95 in-ICU patients. Most patients had normal left ventricular ejection fraction in ICU. Secondly, we have more than 10 cases of autopsy including myocardium, and there were a few interstitial mononuclear inflammatory infiltrates without other substantial damage in the myocardial tissue. There was only one case having positive RT-PCR test of novel coronavirus nucleic acid. Stroma edema and mild to moderate necrosis of cardiomyocytes were also the pathological finding.