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SOUTH AFRICAN SOCIETY OF ANAESTHESIOLOGISTS

SASA COVID-19 **UPDATE**

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SASA COVID-19 update for members over the age of 60

Introduction

COVID-19 is a non-segmented, positive sense RNA virus and is part of the family of coronaviruses. This contains:

- Four coronaviruses which are widely distributed and usually cause the common cold (but can cause viral pneumonia in patients with comorbidities).
- SARS and MERS – these caused epidemics with high mortality. They are somewhat similar to COVID-19. COVID-19 is most closely related to SARS.

Human pathogenic coronaviruses bind to their target cells through angiotensin-converting enzyme 2 (ACE2), which is expressed by epithelial cells of the lung, intestine, kidney, and blood vessels. In addition, ACE2 receptors play a role in the development of hypertension and diabetes, and are present in greater numbers in people with cardiovascular disease.

Why is this not just 'the flu'?

The mortality rate of COVID-19 is roughly 3.4% worldwide according to the WHO, however this rate will vary between countries and across age groups. WHO estimates the death rate is far higher than that of the seasonal flu, which kills about 0.1% of those infected.

According to the Johns Hopkins Coronavirus resource centre, there are currently 7,954 fatalities out of 198,178 confirmed cases in at least 155 countries yielding a 4.0% mortality rate. The 'true mortality' rate will be lower than this however because we have no way of

knowing how many infected people have not yet been, or are unable to be tested. The true number of infected people is likely much higher than the reported total.

South Korea has implemented free coronavirus-testing drive-throughs and tested more than 180,000 people. As of Thursday, 12th March, the country had 66 deaths out of 7,869 cases, giving a death rate of 0.84%.

Experts estimate the COVID-19 mortality rate to be around 1% — at least 10x higher than flu.

How contagious is COVID-19?

Whilst people around the world may have built up an immunity to the flu over time, the newness of the COVID-19 means that no one yet has immunity and more people are susceptible to infection.

A crucial metric for understanding an epidemic is measuring how quickly it spreads. One way to do that is to look at how many people an average person with the virus infects. That's known as R^0 (pronounced R-naught). COVID-19 has an R^0 of roughly 2 to 2.5, meaning that each new person spreads the disease to about 2.2 people on average. That makes COVID-19 more contagious than the seasonal flu (R^0 of 1.3), but less contagious than SARS (R^0 of between 2 and 4). An R^0 of more than 1 means the disease is continuing to spread among people exponentially. COVID-19's global spread and relatively high death rate are ringing alarm bells.

Are older members of our community affected more than younger members and why?

There's a direct correlation between mortality and age. Based on the retrospective data we have so far, if you're between 60 to 69 the mortality rate is 3.6%. If you are between 70 to 79 it is 8%. And if you're 80 or above it is 15%.

A February 2020 study from the Chinese Center for Disease Control and Prevention showed that the virus most seriously affects older people with pre-existing health problems. The study collected data from more than 44,000 confirmed patients in China as of 11th February 2020. It offers one of the broadest depictions of how COVID-19 operates in humans. The data suggests that a far higher proportion of older persons die from the disease than younger persons. The coronavirus is more fatal than the flu across all age ranges, but especially among older persons.

Older persons are more likely to have pre-existing conditions like heart disease or diabetes, which can also make COVID-19 patients more susceptible to severe illness or death.

What medications should I avoid?

Preliminary information is being provided by studies looking at the disease pathway in Italy. One of the factors suggested in poor outcomes, is that many Italian patients took ibuprofen

at home. Researchers combined the virus and ibuprofen in the laboratory and came to the conclusion that the administration of ibuprofen accelerated the multiplication of the virus and that it is related to a more serious course of the disease. They recommend avoiding ibuprofen and other NSAIDs if possible.

A recent article published in the Lancet also makes the following observations:

“Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection?”

[https://doi.org/10.1016/S2213-2600\(20\)30116-8](https://doi.org/10.1016/S2213-2600(20)30116-8)

- The expression of ACE2 is substantially increased in patients with type 1 or type 2 diabetes, who are treated with ACE inhibitors and angiotensin II type-I receptor blockers (ARBs).
- Hypertension is also treated with ACE inhibitors and ARBs, which results in an upregulation of ACE2.
- ACE2 can also be increased by thiazolidinediones (drugs used in the treatment of diabetes mellitus type 2) and ibuprofen.
- These data suggest that ACE2 expression is increased in diabetes and treatment with ACE inhibitors and ARBs increases ACE2 expression.
- Consequently, the increased expression of ACE2 would facilitate infection with COVID-19.
- We therefore hypothesise that diabetes and hypertension treatment with ACE2-stimulating drugs may increase the risk of developing severe and fatal COVID-19.

They make the following recommendations:

- Patients with cardiac diseases, hypertension, or diabetes, who are treated with ACE2-increasing drugs, are at higher risk for severe COVID-19 infection (ACE inhibitors, ARBs)
- Based on a PubMed search on Feb 28, 2020, they did not find any evidence to suggest that antihypertensive calcium channel blockers increased ACE2 expression or activity, therefore these could be a suitable alternative treatment in these patients.

The American College of Cardiology and the American Heart Association and the Heart failure Society of America released the following statement on the 17th March 2020

Currently there are no experimental or clinical data demonstrating beneficial or adverse outcomes with background use of ACE inhibitors, ARBs or other RAAS antagonists in COVID-19 or among COVID-19 patients with a history of cardiovascular disease treated with such agents. The HFSA, ACC, and AHA recommend continuation of RAAS antagonists for those patients who are currently prescribed such agents for indications for which these agents are known to be beneficial, such as heart failure, hypertension, or ischemic heart disease. In the event patients with cardiovascular disease are diagnosed with COVID-19, individualized treatment decisions should be made according to each patient's hemodynamic status and clinical presentation. Therefore, be advised not to add

or remove any RAAS-related treatments, beyond actions based on standard clinical practice.

<https://www.acc.org/latest-in-cardiology/articles/2020/03/17/08/59/hfsa-acc-aha-statement-addresses-concerns-re-using-raas-antagonists-in-covid-19#>.

Considerations for healthcare providers over 60

If you are over the age of 60, carefully consider the risks to you personally vs the benefits of continuing to work and provide care.

Take time to review the guidance for anaesthesia and perioperative care providers - <https://www.wfsahq.org/resources/coronavirus>

All those over the age of 60 should consider workforce planning in their specific facilities. This may include taking measures to avoid exposure to the COVID-19 patients and continuing with the routine anaesthetic emergency cover. Remote service, advisory and supervisory roles can also be explored.

For older colleagues, a delay in exposure to COVID-19 patients will allow for:

- The rate of new infections to be lower once 'herd immunity' is established
- Patients, staff and hospitals will be better prepared
- A better understanding of the disease and treatment options
- You to be able to relieve an exhausted 'first wave' of healthcare providers

Avoid taking ibuprofen and other NSAIDs.

SASA will keep a close eye on the new guidance regarding the continued use of RAAS antagonists (ARB's and ACE I)

This update should be considered as a guide only, based on the early and preliminary information we have available. This is a rapidly evolving space with new information daily. The fight to combat COVID-19 is going to be a marathon effort by all the healthcare providers and will require ongoing resilience and determination.