A 57y F, presents with acute ischemic stroke. She has fever and severe cough and is suspected to have COVID-19. Which of the following statements about COVID-19 is FALSE?

A: The causative organism is SARS-CoV2

B: It was introduced to humans from an animal

C: The case fatality rate is higher than SARS

D: The R0 of this virus is currently estimated to be >3
The Chinese scientists called it the ‘novel’ Coronavirus (2019-nCoV)

WHO has now labelled it:

Severe Acute Respiratory Syndrome-related Corona Virus 2 (SARS-CoV-2)


DOI: https://doi.org/ 10.1016/j.bja.2020.02.008
All Corona viruses are introduced to humans from animals

- SARS from palm civets
- MERS from camels
- COVID-19 possibly from a non-aquatic animal

DOI: https://doi.org/10.1016/j.bja.2020.02.008
The Case Fatality Rate for COVID-19 is lower at 2%, compared to SARS (10%) or MERS (37%).

DOI: https://doi.org/10.1016/j.bja.2020.02.008
**EXPLANATION**

**R0** or **R-naught** is an indication of the transmissibility of a virus, representing the average number of new infections generated by an infectious person in a totally naïve population.

Although the initial estimates of R0 were 1.4 to 2.5, new evidence point to an average R0 to be 3.28 and median to be 2.79.

Liu Y, Gayle AG, Wilder-Smith A, Rocklöv J.

The reproductive number of COVID-19 is higher compared to SARS coronavirus.

Journal of Travel Medicine, Volume 27, Issue 2, March 2020, taaa021

[https://doi.org/10.1093/jtm/taaa021](https://doi.org/10.1093/jtm/taaa021)
Which of the following statements about the epidemiology of COVID-19 is **TRUE**?

A: The delay in acquiring testing kits was due to delay in deciphering the genome sequence

B: Growth factor of 1 indicates the inflection point of an exponential curve

C: The virus survives on steel and plastic surfaces for less than 24h

D: The transmission of virus is only by airborne droplets
The virus and the genomic sequence was identified within 2 weeks of the COVID-19 outbreak.

In comparison, it took 5 months after the outbreak to identify the etiological virus of SARS.

DOI: https://doi.org/10.1016/j.bja.2020.02.008
In an exponential curve, the ‘inflection’ point is when the rising trend of an exponential function slows and becomes a logistic curve.

$$\text{Growth factor} = \frac{\text{No. of new cases in 1 day}}{\text{No. of cases during the previous day}}$$

Growth factor – exponential curve >1; logistic curve <1; inflection point =1
SARS-CoV-2 was detectable in aerosols for up to 3 hours
Copper – 4h; Cardboard – 24h; Plastic & Steel 2-3 days

N van Doremalen, et al. Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1.
The transmission of virus occurs by airborne droplets and contact transmission.

The virus can survive outside the human body on inanimate surfaces

World Health Organization. https://www.who.int/health-topics/coronavirus#tab=tab_1
A 20y M with MVA, GCS-12 (E3,V4,M5) H/o fever & cough for past 4 days after his return from Florida after a vacation. Given the high index of suspicion for COVID-19. Which of the following statements is TRUE?

A: He should not be moved to an isolation room till the virology test comes positive for COVID

B: It is better to give him high flow nasal oxygen so as to avoid intubation to protect the healthcare personnel

C: Intubation should be attempted after ensuring complete paralysis with succinylcholine and avoiding mask ventilation

D: After intubation, confirm tube placement by auscultation
All suspected or confirmed cases of COVID-19 should be isolated, preferably in a negative pressure room with greater than 12 air exchanges per hour.

If this patient needed a surgery which is possible under Monitored Anesthesia Care (MAC), the anesthesia provider will have to weigh the risk of an aerosolizing procedure (endotracheal intubation) and aerosol particles from a coughing patient under MAC.

Early endotracheal intubation to prevent aerosolization of viral droplets is recommended to protect the healthcare personnel.

High flow nasal oxygen will increase the possibility of aerosolization and is NOT recommended in suspected COVID-19 patients.

Complete sedation & paralysis should be ensured to avoid thrashing and coughing during intubation.

Manual ventilation with a resuscitation bag-mask increases the chance of aerosolization and is discouraged.

In a suspected COVID-19 patient, correct placement of the ETT should be confirmed by observing bilateral chest rise and ETCO2 and AVOIDING AUSCULTATION. Additionally, auscultation will not be possible if wearing PPE, especially if Powered Air Purifying Respirators (PAPR) are worn.

The patient from Q3 needs CT scan and possible craniotomy. Which of the following statements is CORRECT?

A: During transport this intubated patient should be ventilated with a resuscitation bag by a physician wearing PPE

B: All the personnel involved with the transfer should be wearing complete PPE

C: The bed railings should be wiped with an antiseptic before leaving the isolation room

D: The operating room should preferably have positive pressure circulation to avoid surgical site infection
If a patient is already intubated and being ventilated, it is prudent not to disconnect it and to transport with the same ventilator so as to minimize droplet aerosolization.

The medical personnel in direct contact with the patient should be wearing all the PPE (N-95 mask, eye protection, cap, gown, double gloves). If the personnel has failed the N-95 fit test (facial hair, facial contour), then they should wear the Powered Air Purifying Respirators (PAPR).

Only the personnel in direct contact with the patient should wear PPE. During transfer, a security personnel should go ahead and ensure that the corridors are free of people and the doors and elevators are open. These people need not wear the PPE.

SARS-CoV-2 was detectable in aerosols for up to 3 hours
Copper – 4h; Cardboard – 24h; Plastic & Steel 2-3 days
Therefore, the patient’s gown and covering sheet should be changed, and the plastic and the metal parts of the bed should be wiped with antiseptic solution before leaving the airborne isolated room
Alternatively, the patient may be transferred on to a clean transport gurney

N van Doremalen, et al. Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1.
All suspected or confirmed cases of COVID-19 should be isolated, preferably in a negative pressure room with greater than 12 air exchanges per hour.

This is to minimize airborne transmission of droplets, and the same is true for operating rooms.

A COVID-19 patient should be operated in a negative pressure OR.

Most ORs are positive pressure, as it reduces surgical site infection.

In the wake of the current COVID-19 epidemic, which of the following is CORRECT?

A: This is a community acquired infection and healthcare personnel in the hospital using PPE are not at a higher risk

B: Only those people who have fever +/- cough should quarantine themselves and practice social distancing

C: If a COVID-19 patient needs resuscitation, it should be done by 2 rescuers, one for chest compression and the other for bag-mask ventilation

D: Covid-19 agent uses receptor angiotensin converting enzyme (ACE) 2 for entry into target cells
Of 138 hospitalized patients with COVID pneumonia, in Wuhan, China, the median age was 56 years (IQR 42-68; range 22-92 years).

Hospital-associated transmission was suspected as the presumed mechanism of infection for affected health professionals (40 [29%]) and hospitalized patients (17 [12.3%]).

Currently, suspicion of COVID requires fever with cough and contact with an infected person or travel to an affected area. However, with an incubation period of 2-14 days, a subject may be infective even before the symptoms appear. So, as responsible citizens, it may be prudent to practice social distancing to limit the spread.

All personnel performing procedures leading to airborne dissemination such as airway management and resuscitation should wear PPE. It is preferable to have 2 rescuers, and it is prudent to avoid mask ventilation. Intubation should be performed as soon as possible while holding chest compression. Nasal oxygen with 2-6L/m may be given.


AHA Interim Guidance for Healthcare Providers during COVID-19 Outbreak
Great Job!! Correct.

This statement is correct, and it has also been shown that ACE-inhibitors and ARB can upregulate ACE 2 receptors [1]

However, AHA, the HFSA and the ACC recommend continuation of these drugs [2]


Suggested Reading


3. World Health Organization. https://www.who.int/health-topics/coronavirus#tab=tab_1


5. Rhodes A et al. Surviving Sepsis Campaign: Guidelines on the Management of Critically Ill Adults with Coronavirus Disease 2019 (COVID-19). This article has undergone peer-review and has been accepted for co-publication in the Journals Intensive Care Medicine (ICM) and Critical Care Medicine (CCM)


CONTENT OUTLINE

QUESTION 1, 2, 3, 4, 5