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Understanding COVID-19

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Understanding COVID-19

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Topic

- Provided are materials for safety and education on COVID-19 for the anesthesia provider
- SARS-CoV-2 causes COVID-19 (Coronavirus Disease 2019(COVID-19), 2020)

Why COVID-19

- COVID-19 has grown to impact new lives each day
- Empowerment of knowledge to combat virus
- Remain healthy to serve and educate others
- 43% of infected with 2003 SARS (similar to COVID-19) in Canada were healthcare providers (Peng et al., 2020)
- Many anesthetic procedures have potential to transmit the disease
- Anesthetists will be exposed to the viral plume

Signs and Symptoms

- Many patients are asymptomatic per Jacofsky et al. (2020)
- Those with symptoms per Jacofsky et al. (2020) identified
 - dry cough
 - sore throat
 - fever
- Transmission via viral shedding can occur 2 days prior to reported symptoms (He et al. 2020)

Underlying Patho

- Transmission entry points per Kowalik et al. (2020)
- Upper respiratory tract
- Gastrointestinal tract not ruled out
- Once inside host COVID-19 response includes per Kowalik et al. (2020)
 - Large amounts of inactive CD8+ T cells produced
 - Amount of inactive cells block active immunity
 - Viral particles switch on the apoptosis of macrophages

- Extensive proinflammatory cytokines release (cytokine storm)
- Cytokine storm present in those with immune risk lead to acute respiratory distress syndrome (ARDS)
- Fatal complications per Jacofsky et al. (2020)
 - ARDS
 - · severe pneumonia
 - · organ failure
 - septic shock

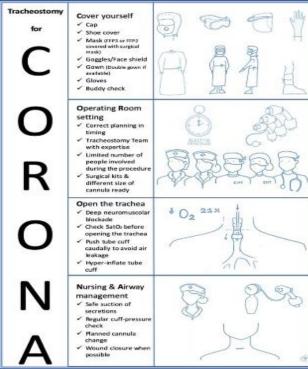
Viral, Antigen-Antibody Response

- Viral and antibody testing combined per Jacofsky et al. (2020)
 - reliable source of information
 - (-) viral, (-) IgM, (-) IgG
 - Does not rule out recent exposure
 - If symptoms present, retest at later date
 - Recommend selfisolation
 - (+) viral, (+) IgM, (-) IgG

- Early stage, likely to be transmittable
- Recommend selfisolation
- (-) viral, (-) IgM, (+) IgG
 - Late stage, unlikely to be transmittable

Figure 1

Reduce Exposure While Performing Tracheostomy



Note: Utilized for tracheostomy procedure to reduce exposure of COVID-10 (Pichi et al., 2020)

- (+) viral, (+) IgM, (+) IgG
- Early to mid stage, likely transmittable
- Recommend self-isolation

COVIDs Significance

- Due to impact on immune system per Kowalik et al. (2020)
 - Healthy children and adults combat virus

- Elderly, Immunocompromised have difficulty combating disease
- When complications arise, procedures to maintain airway may be indicated
- Viral shedding and transmission via the respiratory tract pose risk for anesthesia providers due to aerosol plume of procedures (Peng et al., 2020)
 - Intubation
 - Tracheostomy

Nursing Care

- To reduce exposure Peng et al. (2020) posed
 - Personal protective equipment (PPE)
 - Double gloving
 - Room prep
 - Airway management
 - Air purifying respirators
- Due to direct exposure Sommers et al. (2020) advises
- Avoid tracheostomy if possible

- Pichi et al (2020) finds early tracheostomy reduced mortality rates over last 30 years.
- Figure 1 shows acronym with steps for successful tracheostomy (Pichi et al., 2020)
- C Cover self
- O and R utilize the OR
- 0 Open the trachea with deep neuromuscular blockade
- N Nursing, schedule cannula change
- A Airway
 management, safe
 suction
 management
- Pichi et al (2020) found a designated team utilized for tracheostomy reduced complication

Conclusion

- COVID-19 continues to complicate lives
- Symptoms may or may not be present during the transmission period

- Viral and antibody testing combined give information on progression of disease
- Immunocompromised and elderly at risk for severe complications
- Anesthetists are at risk for exposure due to respiratory plume
- Use of PPE reduces chance of exposure
- Tracheostomy should be avoided if possible
- If not possible to avoid tracheostomy remember CORONA to guide care
- A specialized team for tracheostomy reduces issues and exposure

References



