

CORONAVIRUS DISEASE 2019, MIDDLE EASTERN RESPIRATORY SYNDROME, AND SEVERE ACUTE RESPIRATORY SYNDROME

(Last updated 01/07/2020; Reviewed by: Shalini Donthi, MBBS; Aysun Tekin, MD; Ognjen Gajic, MD)

PRESENTING COMPLAINT: fever or chills, fatigue, cough, shortness of breath

FINDINGS

- **A** Check Airway
- **B** ↑RR, increased work of breathing
- **C** ↑HR
- **D** Variable altered (V,P,U,D)*
- **E** fever
- **Lpc** CBC, ↓lymphocyte count, ↑Liver enzymes, ↑D-dimer, ↑troponin
- **Upc** B lines

***V** (verbal), **P** (pain), **U** (unconsciousness), **D** (delirious)

U_{PC} (point of care ultrasound) **L_{PC}** (point of care labs)

OTHER HISTORY

Myalgia, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhea, confusion

DIFFERENTIAL DIAGNOSIS

- Bacterial pneumonia, influenza, RSV infection, parainfluenza, rhinovirus, metapneumovirus, brucellosis, other coronaviruses

OTHER INVESTIGATIONS

- RT- PCR nasopharyngeal and oropharyngeal swabs, pulmonary imaging (airspace opacities, most often bilateral, peripheral, and lower zone predominant), serologic tests
- D-dimer, CRP, LDH, troponin, ferritin, and CPK tests should be considered for determining the progression to severe disease

THERAPEUTIC INTERVENTIONS

- **Coronavirus Disease 2019 (COVID-19)**
 - The optimal approach is uncertain. Recommended interventions vary according to the severity of the condition.

- Nonsevere Illness (Asymptomatic or presymptomatic infection, mild or moderate illness):
Individuals who have no symptoms, have symptoms other than dyspnea and have normal chest imaging, or have pneumonia but have SpO₂≥94% on room air
 - Supportive care, and close follow-up for progression to severe disease.
- Severe or Critical Illness: Individuals who have SpO₂<94% on room air, have PaO₂/FiO₂<300 mmHg, respiratory rate >30/minute, or >50% infiltrates on lung imaging; or respiratory failure, septic shock, multi-organ failure
 - Dexamethasone 6 mg/day (or equivalent dose of other glucocorticoids, if dexamethasone is unavailable) for 10 days or until discharge from the hospital
 - Remdesivir treatment, 5 or 10 day course according to the severity of the disease
 - Other specific treatment options such as convalescent plasma or tocilizumab are only recommended within the context of clinical trials.
- Treatment for respiratory failure:
 - Non-invasive respiratory support measures such as high flow oxygen treatment or non-invasive mechanical ventilation should be considered in patients with acute respiratory failure and have high oxygen needs.
 - Patients who are supported with noninvasive measures should be followed up carefully in terms of decompensation. Emergency intubation might cause increased risk of exposure to healthcare workers. Thus, intubation should preferably be performed before acute decompensation develops.
 - Using low tidal volume ventilation (4 to 8 mL/kg predicted body weight) targeting ≤30 cm H₂O plateau pressure is suggested. Prone positioning should be considered for patients who do not respond well to low tidal volume ventilation.
- Empiric treatment for concomitant influenza or bacterial pneumonia should be considered in selected patients.
- Critically ill patients are at particularly high risk for thromboembolic complications. Pharmacological anticoagulant prophylaxis should be considered.
- **Middle Eastern Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS):**
 - No specific medication treatments are available at this time: Some experimental medications are in development and are outside of the scope of this guideline and are not recommended outside research protocols
 - Glucocorticoids: routinely not recommended; concern for prolonged viral shedding
 - General supportive care

- Lung protective mechanical ventilation and negative fluid balance as tolerated for ARDS
 - Please refer to the WHO management guidance at http://www.who.int/csr/disease/coronavirus_infections/case-management-ipc/en/

PROCEDURES

- Patients should be placed **in contact and airborne isolation** while hospitalized as per CDC guidelines
 - <https://www.cdc.gov/coronavirus/mers/infection-prevention-control.html>
 - <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control.html>
- Eye protection should be included
- During any aerosol generating procedure (such as intubation, bronchoscopy, cardiopulmonary resuscitation) in addition to other personal protective equipment, healthcare workers should wear fitted respirator masks instead of surgical masks.

CONSULT: Infection control and public health

ONGOING TREATMENT

- **Follow-Up**
 - For COVID-19:
 - For patients with symptoms isolation practices may be discontinued when it has been:
 - at least 10 days since the beginning of symptoms
 - at least 24 hours since the resolution of fever
 - and, all other symptoms have improved.
 - Patients without any symptoms may discontinue isolation precautions 10 days after the initial positive SARS-CoV-2 PCR test.
 - Public health will have to follow up with patient to establish potential contacts and determine who, if any, needs additional screening
- **Prophylaxis:** None

CAUTION

- Healthcare worker exposure and infection is a potential complication of treating patients with coronavirus infections.
- Universal use of masking, social distancing, and hand hygiene practices are recommended.

REFERENCES & ACKNOWLEDGEMENTS

Acknowledgement: *Rahul Kashyap, MBBS; Hasan Aldorzi, MD; Yaseen Arabi, MD*

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