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SARS – COV-2 /COVID 19

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SARS-CoV-2 / COVID 19 disease progression

81% of patients will have mild COVID symptoms and can be managed safely at home - with instructions to return if symptoms progress

14% of patients will have severe COVID symptoms and will be admitted to the hospital for monitoring and treatment

5% of patients will have critical illness and respiratory failure associated with viral pneumonia

***of these patients ~ 25-50% will die**

current ventilated patient mortality for Memphis is ~ 40%

Acute Infection:

Incubation period is 2 to 14 days

97.5% will develop symptoms of infection within 11.5 days from exposure

Onset of symptoms

5 to 8 days on average for shortness of breath

Progression to ARDS/CARDS in 8-12 days

***there is a potential for rapid deterioration**

Overall, current mortality listed by the CDC is 2.3 to 2.7%

Overall survival rate for Baptist and Methodist systems is 96-97%

Risk of severe illness increases in

age > 80

obesity

diabetes

cardiovascular disease

chronic lung disease

chronic kidney disease

immunosuppression – transplantation or cancer

previous CVA

SARS-CoV-2 / COVID 19 preparation

- 1. Co-hort patients – both confirmed and suspected**
 - ☛ if it looks like COVID - treat it like COVID**
- 2. Negative air flow rooms are preferred**
- 3. Dedicated staff – RNs, RTs, and allied health professionals**
- 4. PPE - sufficient protection for everyone to implement droplet precautions – no exceptions**
- 5. Restricted visitation to minimize exposures**
- 6. Alternative methods of communication with family – I-pads, Cell phones, Zoom, etc.**
- 7. Flu vaccine should be held until acute COVID symptoms have resolved**

SARS-CoV-2 / COVID 19 preparation

- 8. Preparation and training for staff regarding procedures**
 - intubation**
 - video-assisted laryngoscopy**
 - resuscitation**
 - proning**
 - CRRT / dialysis**
 - ECMO**
- 9. Be prepared for discussions with family members regarding possible progression of disease and establish realistic outcomes**
- 10. Be prepared to enlist the assistance of the palliative care team**

Hospitalization

Severe **lower** acuity patients:

fever over 100.5 degrees F

tachypnea but less than 30 breaths per minute

SpO₂ less than 94% on room air and requires approximately 3-5 liters per minute of supplemental oxygen

tachycardia

bilateral infiltrates on Chest Xray or Chest CT

elevated inflammatory markers

Hospitalization

Management:

Admit to co-horted unit

Droplet isolation precautions

Supplemental oxygen

Pulse oximeter monitoring

Teach patient to lie prone for several hours a day

Steroids (Dexamethasone or Solu-Medrol or Prednisone) 5-10 days

COVID vitamins C, D, and Zinc

Statins

Monitor COVID labs daily

Chest CT is preferred (vs CXR)

Hospitalization

Management: Create bundles for COVID orders

COVID labs:

CBC

CMP

ESR

CRP

Procalcitonin

LDH

Ferritin

D-Dimer

PT/PTT

Patients are often lymphopenic or neutrophilic

Hospitalization

Management:

Be mindful of coagulopathies and consider anticoagulation

Rule out other sources of infection: blood, urine, and sputum cultures

Add broad spectrum antibiotics if underlying bacterial infection is suspected – procalcitonin can be helpful with this

De-escalate antibiotics if Gram stains are negative

Manage comorbid conditions – hypertension, diabetes, COPD, renal failure, etc.

Prepare the patient for isolation and support mental health as much as possible

Hospitalization

Progression of disease can occur quickly – be on guard

Typically the patient fails to respond to steroids, supplemental oxygen, and rest

- **Patient requires > 5-10 liters of supplemental oxygen with persistent symptoms of illness (fever, shortness of breath, cough, tachycardia, etc).**
- **Change in mental status warrants a CT of the Head**

Hospitalization

Management:

Continue steroids **and add**

Convalescent plasma - 1 to 3 transfusions

Remdesivir (Veklury) antiviral medication (Gilead) for 5 days

*anticipate 80% of hospitalized COVID + patients will receive it

Consider anticoagulation –coagulopathies have occurred
may need CT with PE protocol

Hospitalization

Management:

May require higher level of care – Step Down or ICU

- depends on bed flow and staff availability
- outlying hospitals may also transfer into the medical center at this point

Supplemental oxygen can be titrated up to keep SpO₂ above 92%

Pulse oximeter monitoring

COVID vitamins

Statins

Continue to monitor COVID labs daily

Hospitalization

Management:

We do not recommend hydroxychloroquine (Plaquenil) or tocilizumab (Actemera) at this time for IL-6 blockade

We do not recommend lopinavir or ritonavir (anti-virals) at this time

Be mindful of cytokine storm or cytokine release syndrome (CRS)
less likely to see this if steroids are used early

COVID Vitamins (anti-inflammatory)

Vitamin C, D, and Zinc

Statins (anti-inflammatory)

Hospitalization

Continued decline with failure to respond to therapies:

Transfer to a co-horted COVID ICU

Support hemodynamics

ECHO or angiography if myositis / heart failure is suspected

~20% of patients will have myositis

watch drug interactions and potential to prolong the QT

Support oxygenation – high flow nasal oxygen

Intubate as a last resort

Monitor renal function ~ 15% will require CRRT

Continue to be suspicious of secondary bacterial infection

Assist the patient to ride out the storm

Hospitalization

Continue attention to underlying co-morbidities

Assist the patient to ride out the storm

Our experience has been patients tend to linger for weeks

Finding SNIF or rehab placement is challenging

Patients may continue to test positive for weeks/ months

Hospitalization

Protection for employees

Essential for all personnel to comply with guidelines

As of 8/31/2020 there have been 149,195 cases among healthcare workers and 670 deaths

<https://covid.cdc.gov/covid-data-tracker/#health-care-personnel>

References:

AACN – Critical Care

<https://www.aacn.org/clinical-resources/covid-19>

CDC.Gov

<https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/evidence-table.html>

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IDSA

<https://www.idsociety.org>

SCCM

<https://sccm.org/home>

Tennessee Department of Health

<https://www.tn.gov/health/cedep/ncov.html>

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