Management of COVID-19 Patients in the Non-Critical Care Setting*, **

Clinical Presentation

I. Incubation period estimated at 5 to 6 days (range 1 to 14 days)
II. Presentation: asymptomatic infection to fatal illness
III. Most frequently reported signs/symptoms fo admitted patients at illness onset:
    a. Fever (77-98%)
    b. Cough (dry) (up to 80%), sputum (20%)
    c. Nasal/sinus congestion (5-25%)
    d. Myalgia/fatigue (11-52%)
    e. Shortness of breath (3-31%)
    f. Sore throat, headache, GI symptoms, anosmia, ageusia
    g. Elderly/immune compromise may present with atypical symptoms
IV. 15-20% of patients with positive swabs require hospitalization

Clinical Syndromes Associated with COVID-19

a) Asymptomatic/presymptomatic
b) Mild illness – patients with uncomplicated URTI and no shortness of breath or abnormal imaging
c) Pneumonia – no need for supplemental oxygen
d) Severe pneumonia – fever or suspected resp infection plus one of the following: RR>30, wevere respiratory distress, or SpO2 < 90% on room air
e) ARDS
f) Multi-system Inflammatory syndrome in Children (MIS-C) – children and adolescents
g) Sepsis or septic shock

Clinical course for admitted patients

a) Approximately 80% do not require critical care
b) Approximately 10% develop ARDS
c) Approximately 5% develop renal injury requiring renal replacement therapy
d) Elevated AST/ALT (200s) is common, fulminant hepatitis not reported
e) Cardiomyopathy in critically ill patients

Diagnosis and Workup

MINIMIZE AND BATCH BLOODWORK AS MUCH AS POSSIBLE. Consider adding tests to previous lab work and reassess whether bloodwork is needed daily.

a) CBC: lymphopenia (33-85%), leukopenia, leukocytes is (<25% of cases).
b) AST/ALT slightly increased
c) Creatinine elevated: worse prognosis
d) Troponin/BNP often elevated even in absence of heart failure
e) CRP, LDH, troponin, ferritin, d-dimer – prognostic markers to send once COVID confirmed if not already done
f) Blood cultures before antimicrobial therapy
g) NP swab if not already done
h) Portable CXR in all patients
i) CT chest – use sparingly to avoid transmission risk
j) Admission EKG and then repeat on day 7 and day 12 of illness

Supportive treatment

a) Enhance droplet precautions
b) Oxygenation
    a. Monitor for increasing oxygen needs, respiratory rate and effort
    b. Oxygen support with regular nasal cannula up to 5-6L/min
    c. Above this use a nonrebreathe – avoid bipap/cpap/optiflow
c) IV fluids
    a. Maintain 20" IV access in event of decompensation
    b. Use conservative fluid management when there is no evidence of shock due to potential of worsening oxygenation
d) DVT prophylaxis – Dalteparin daily to avoid BID injections
e) Antipyretic for fever
    a. Acetaminophen preferred
f) Medication management
    a. No evidence to support theoretical concerns about ACEI/ARBs
    b. Consider substituting any BID and TID medications to equivalent BID or Daily medication
    c. Nebulizers should be considered aerosol generating and should be avoided. Metered dose inhalers (MDI) are preferred.
g) Code Status – early discussion given high risk for needing intubation/CPR/ICU care

Steroid therapy

a) Among hospitalized adult patients who require supplemental oxygen, clinicians should strongly consider dexamethasone 6mg IV daily for 10 days (or until off oxygen or discharge if earlier) or equivalent glucocorticoid dose

Antimicrobial treatment

a) In mild to moderate cases - Use if suspicion of concomitant bacterial pneumonia
b) In severe cases – antibiotic choice based on epidemiology

Antiviral therapy

a) When there is ongoing local circulation of influenza, empiric therapy with a neuraminidase inhibitor should be considered for the treatment of influenza viruses in patients with or at risk for severe disease
b) Specific COVID -19 therapies are only to be given in the setting of a clinical trial

Complications

1. ARDS – median time of onset is 8 days from symptom onset
    a. Suspect it if:
        i. Signs of impending ARDS: increasing oxygen requirements or increasing respiratory effort
    b. Findings:
        i. CXR – bilateral opacities, not fully explained by volume overload, lobar or lung collapse, or nodules
    c. Early ICU consult
2. Secondary Lung Infection – treat empirically as per epidemiology of pneumonia
3. Sepsis
    a. Signs include altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood

pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate, or hyperbilirubinemia

   b. Management:
      i. Bolus 250 to 500 cc crystalloid at a time
      ii. Broad spectrum antibiotics
      iii. Consult ICU
4. Cytokine Activation Syndrome
   a. Findings consistent with secondary HLH
   b. Leads to rapid progression to ARDS
5. DIC
6. Cardiac injury
   a. May present late in the course of illness even after improvement of respiratory symptoms and manifest as a precipitous clinical deterioration in the setting of an acute decline in LVEF
7. Liver dysfunction
8. AKI

Indications to Consider ICU Consultation

1. Respiratory distress
2. Needs Oxygen>4L by NP to maintain SPO2>92 or PaO2>65
3. Rapid escalation of oxygen requirement
4. Significant work of breathing
5. Hemodynamically instability after initial conservative fluid resuscitation

*Adapted from documentation graciously shared by Dr. Robert Wu and the University Health Network (UHN)
**Updated based on "Clinical Management of Patients with COVID-19 – 2nd Interim Guidance – Public Health Agency of Canada (August 17, 2020)

https://canadiancriticalcare.org/resources/Documents/AMMI-CCCS-PHAC-clinical-guidance-Aug21-EN-FINAL.pdf