

TREATMENT GUIDE

For Critically Ill Patients With COVID-19

PRESENTATION

Notable SX

- ~65-80% Cough
- ~15% URI Sx
- ~45% Febrile initially
- ~10% GI Sx
- Acute worsening after early mild sx

High Risk For Severe DZ

- Age > 55 YO
- Comorbid diseases:
 - » Pulm, cardiac, renal
 - » DM, HTN
 - » Immunocompromise

Labs Indicating Severe DZ

- D-dimer elevation
- CPK >2X ULN
- CRP >100, LDH > 245
- Troponin elevated/ up trending
- Abs lymphocyte count < 0.8
- Ferritin >300

DIAGNOSTICS

Daily Labs

- CBC WITH DIFF (TREND LYMPHS)
- CMP
- CPK

Risk Stratification Q2-3 DAY PRN

- D-Dimer
- Ferritin/CRP/ESR
- LDH

One Time Test for All Patients

- HBV, HCV, HIV TESTING
- Influenza A/B, RSV
- Additional respiratory virus panel per ID
- Tracheal aspirate if indicated
- SARS-CoV2 (if not already sent)

Diagnostics Typically Seen in COVID19

- LABS: leukopenia/lymphopenia, elevated BUN/SCR, elevated AST/ALT/Tbili
- CXR: hazy bilateral peripheral opacities
- CT: ground glass opacities, consolidation
- Lung POCUS*: numerous B lines, pleural line thickening, consolidation

RESPIRATORY FAILURE

Consider early intubation in ICU in Negative Pressure Room

Warning signs: increasing FIO₂, decreasing SpO₂, increased respiratory rate, worsening CXR

LUNG PROTECTIVE VENTILATION

- Vt 6 mL/kg predicted body weight
- Plateau pressure < 30
- Driving pressure (P_{plat}-PEEP) < 15
- Target SpO₂ 92-96%, PaO₂ > 60
- Starting PEEP 10

CONSERVATIVE FLUID STRATEGY

- Diuresis as tolerated by hemodynamics/creat
- No maintenance fluids

PEEP TITRATION

Best PEEP by tidal compliance or ARDSnet low PEEP table

PRONE

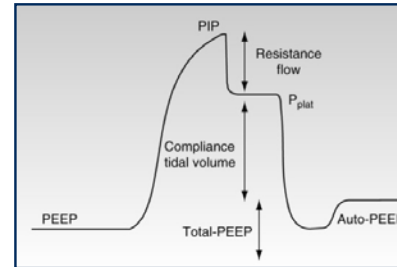
Early consideration if continuing hypoxemia or elevated airway pressures

ADDITIONAL THERAPIES

- Paralytics for vent dysynchrony
- Consider inhaled NO if available

ECMO CONSULT (CALL ICU ATTG)

- PaO₂ < 80 on FIO₂ 100% despite proning, hemodynamic instability X 12 hours
- Age < 65
- BMI < 45
- Smoking hx < 30 ppy



VENTILATOR METRICS

Tidal Volume (Vt): The amount of gas the ventilator delivers

FIO₂: Fraction of inspired oxygen. The percentage of oxygen you set.

PEEP: Positive end expiratory pressure. The ventilator will hold this set pressure once expiratory flow stops.

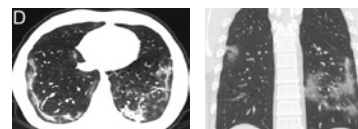
Plateau pressure (P_{plat}): The pressure measured during an inspiratory pause. This is most reflective of the distending force in the lung by the delivered VT. Above 30 cm H₂O increases risk of barotrauma.

Compliance (alveolar compliance): Describes the degree of flexibility of the lungs and thoracic cavity. A more compliant lung can tolerate higher volumes without dangerous increases in pressure. COVID-19 lungs generally have normal compliance.

Peak pressure: The pressure measured in the airways. This is not delivered to the lung.

MONITORING

- Telemetry
- Pulse oximetry
- Non-invasive BP versus arterial line
- Central line if requiring pressors or TPN



HEMODYNAMICS

- Norepinephrine first choice vasopressor
- If worsening:
 - » Consider myocarditis/cardiogenic shock
 - » Obtain POCUS* echo, EKG, trop, CVO₂ (formal TTE if high concern) and DIC labs

CHANGES FROM USUAL CARE

- NO ROUTINE DAILY CXR
- MINIMIZE staff contact in room
- HIGH THRESHOLD for bronchoscopy
- HIGH THRESHOLD for travel (to CT, etc)
- BUNDLE bedside procedures
- Appropriate guideline-based isolation for aerosol generating procedures:
 - » Bronchoscopy
 - » Intubation/extubation (see guidelines)
 - » AVOID nebs, prefer MDIs

USUAL ICU CARE

- Sedation vacation daily / assess RASS goals
- Nutrition – start/continue TEN if tolerated
- GI ppx – ranitidine or lansoprazole
- DVT ppx – enoxaparin unless contraindicated
- Bowel regimen – daily
- Glycemic control – q6 hours
- POCUS* when needed
- Bundle care procedures and med administration
- ABCDE bundle

THERAPEUTICS

All ICU Admissions

- Low threshold for empiric abx
- WITH ID GUIDANCE
 - » Consider hydroxychloroquine
 - » Remdesivir through clinical trials

Immune Modulation

- Immunomodulatory therapies only in consultation with ID and critical care attending
- NO STEROIDS for resp failure, consider only in s/o additional indications (COPD, asthma) including possibly septic shock