# Acute Respiratory Distress Syndrome (ARDS) Pathway

| | |
|---|---|
| Provisional diagnosis | Previous lab investigations if any: |
| Duration of previous hospitalization (if) | |

| CO-MORBIDS | | | | |
|---|---|---|---|---|
| | ☐Hypertension | ☐COPD | ☐Immunocompromised | ☐Post-Transplant |
| | ☐Type 2 Diabetes Mellitus | ☐CLD | ☐Malignancy / Chemo Tx | ☐Alcoholic |
| | ☐CAD | ☐CKD | ☐Steroids / Immuno suppressant Drugs | ☐Smoker |

**Recognize**

Cause of ARDS

☐Non COVID-19

**Predisposing conditions:**
☐Pneumonia
☐Sepsis
☐Aspiration
☐Burns/Panreatitis

☐ COVID- 19

☐Exposure risk
☐RAT/RT-PCR for SARS Cov2+ from NP/BAL/TA

**CXR/HRCT lung**

Extensive bilateral Interstitial & airspace opacities

**Echo** if suspicious of heart failure:
Evidence of heart failure

No → **Possible ARDS**

Yes → **ARDS Excluded**

Bilateral vague/hazy/airspace opacities

Confirmed ARDS

- ☐ Timing of insult - **< 1 week**
- ☐ Bilateral infiltrates on Imaging - CXR/ HRCT lungs
- ☐ P/F ratio - **< 300**
- ☐ PEEP: **> 5 CmH2O**
- ☐ Cardiac failure/ Volume overload : **Absent**

## Immediate General Assessment and stabilization

- ☐A: Airway - Assess and maintain patent airway ☐ (ETI/MV)
- ☐B: Breathing - Assess and administer oxygen if required;

  aim SpO 2 ≥ 95%
- ☐C: Circulation - Vascular access, blood collection,
  - Send for Blood gluose/CBC/RFT/LFT/ /PT, INR, APTT
- ☐12 lead ECG

## Management

ARDS Criteria met

**☐Mild ARDS**
- ○ P/F < 200 -300
- ○ HFNC/NIV
- ○ PEEP 5-10
- ○ Early ventilation

**☐Moderate ARDS**
- ○ P/F -100 - 200
- ○ NIV - high failure
- ○ Sedation

**☐Severe ARDS**
- ○ P/F < 100
- ○ Sedation
- ○ Paralysis

**Conventional Ventilation strategy**

Low Tidal volume - $V_T$ < 6ml/kg IBW

PEEP > 10 CmH2O

Pplat < 30 CmH2O

ΔP - least possible (<15 CmH2O)

Stress index - 1

**Targets**

Spo2 : > 92%

PaO2 : 55 - 80 mm of hg

PH > 7.25

No acceptable PCo2 target

**<u>If P/F ratios < 150 :</u>**

☐NMB

☐Recruitment manoeuvres

☐Prone ventilation

**<u>Rescue therapies :</u>**

☐iNO

☐HFOV

☐VV ECMO/ECCOR

## Measures during Prone Ventilation

- At least 16 -20 hrs/day
- Reduce feeds in prone to avoid aspiration
- Sedation and paralysis - Mandatory
- Keep rotating head every 2 hrs
- Avoid when there is significant haemodynamic instability/arryhthmias
- Padding of pressure points
- Avoid kinking of catheters/tube

## Consider VV- ECMO if

**Refractory Hypoxemia and dangerous ventilation**

- $PaO_2:FIO_2$ ratio <50 mmHg for >3 hours; or
- $PaO_2:FIO_2$ ratio <80 mmHg for >6 hours; or
- Arterial blood pH <7.25 with a $PaCO_2$ >60 mmHg for >6 hours (wirh RR35/min) from MV seting adjusted to keeo Pplat ≤32 cm $H_2O$.

Or

- **Murray Score** of > 2.5 (Appendix)

| ICU Days | EVENTS / SUPPORTS | | | | |
|---|---|---|---|---|---|
| 1 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| 2 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| 3 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| 4 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| 5 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| 6 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| 7 | ☐MV | ☐RRT | ☐Vasopressors | ☐Organ dysfunction | ☐Others |
| >7 days Course of illness | | | | | |

## Outcome

I. APACHE II/IV Score: _____ 2. SOFA Score at the time of admission:_____ , 48hr: _____ at the time of transfer out / LAMA / Discharge:_____ 3. Length of ICU Stay:_____ 4.Length of Hospital stay:____

II. Organ Failure : ☐AKI ☐Liver failure ☐Coagulopathy ☐Encephalopathy ☐Myocardial Dysfunction ☐CIPNM ☐MV dependent

III. Renal replacement therapy_____day from CRRT / SLED

IV. MV_____ duration ☐Proning ☐ECMO ☐Tracheostomy

V. Outcome: ☐Death ☐Survived (Discharged from ICU / Transfer out to stepdown / HDU/ Room) ☐LAMA

☐Ambulated ☐Bed ridden (with support / without support)

Doctor Name: _____, Sign: _____

**Appendix:**

1) **Ideal body weight (IBW):**

Men 50 + (0.91 X [ ht in cms - 152.4])

Women 45.5 + (0.91 X [ ht in cms - 152.4])

2) Mode: VCV or PCV

- Low Vt 6ml/kg IBW
- PEEP > 10 cmH2O
- Pplat < 30 cmH2O

ΔP delta Pressure : Pplat - PEEP

Any change in PEEP/Volume - should decrease delta pressure –

Titrate PEEP by one of the following

A) ARDS net protocol – If P/F >150 use low PEEP protocol

– If P/F <150 use high PEEP protocol

**Lower PEEP/higher FiO2**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **$FiO_2$** | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 |
| **PEEP** | 5 | 5 | 8 | 8 | 10 | 10 | 10 | 12 |

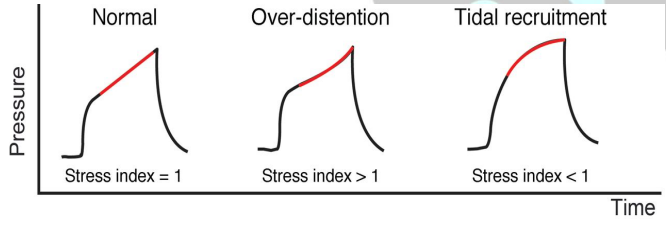
| | | | | | | |
|---|---|---|---|---|---|---|
| **$FiO_2$** | 0.7 | 0.8 | 0.9 | 0.9 | 0.9 | 1.0 |
| **PEEP** | 14 | 14 | 14 | 16 | 18 | 18-24 |

**Higher PEEP/lower FiO2**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **$FiO_2$** | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 |
| **PEEP** | 5 | 8 | 10 | 12 | 14 | 14 | 16 | 16 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **$FiO_2$** | 0.5 | 0.5-0.8 | 0.8 | 0.9 | 1.0 | 1.0 |
| **PEEP** | 18 | 20 | 22 | 22 | 22 | 24 |

B) Stress Index : Keep it = 1pressure time scalar in VC mode only






C) Incremental increase in PEEP till ΔP suddenly increase.

# Murray score

= average score of all 4 parameters

| Parameter / Score | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| **PaO2/FIO2 (On 100% Oxygen)** | ≥300mmHg<br>≥40kPa | 225-299<br>30-40 | 175-224<br>23-30 | 100-174<br>13-23 | <100<br><13 |
| **CXR** | normal | 1 point per quadrant infiltrated | | | |
| **PEEP** | ≤5 | 6-8 | 9-11 | 12-14 | ≥15 |
| **Compliance (ml/cmH2O)** | ≥80 | 60-79 | 40-59 | 20-39 | ≤19 |



| Author | Supervised by | Version/Date | Review Date |
|---|---|---|---|
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