

Acute Respiratory Failure

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Clinical Signs

- Hypoxia
- Hypercarbia

Pathophysiology

- Low FIO₂.
- Hypoventilation.
- V/Q mismatch.
- Diffusion abnormality.

Dyspnea

- Minutes:
 - Pneumothorax
 - PE
 - Pulmonary edema

Dyspnea

- BA
- Pneumonia
- PE
- Metabolic Acidemia

Dyspnea

- Pleural effusion.
- COPD exacerbation
- Pneumonia

Clinical Pearls

- Indications
- Severe Respiratory distress:
- $RR > 30$
- Working ala nasi
- Abdominal pattern of breathing.
- $RR < 9$

Clinical Pearls

- Acute change in mental status.
- Respiratory acidosis: $\text{pH} < 7.25$ and $\text{PaCO}_2 > 60$ mmHg.
- Refractory hypoxemia ($\text{SpO}_2 < 90$):
- NRM
- CPAP mask.

Clinical pearls

- Procedure:
 - Intubate using midazolam 2-5 mg and atracurium 50 mg IV.
 - Start BIPAP mode PIP 28, PS 15, PEEP 5, RR 14, FIO₂ 100%.
 - Assess ABG and CXR in 15 min.
 - PCO₂ and pH:
 - Normal or at baseline: maintain initial settings.

Clinical pearls

- Low PaCO₂:
 - Decrease RR, PIP.
 - Sedate.
- Control pain.
- High PaCO₂:
 - Increase RR
 - Increase PIP.

Clinical pearls

- PaO₂:
 - > 60 mmHg
 - Decrease FIO₂ 10% every hour.
- < 60 mmHg:
 - Check CXR
 - Increase PEEP
 - Treat underlying disease
 - Correct anemia
- Consider:
 - IRV
 - Pronning.