

Hypercarbic Respiratory Failure

Patient with Respiratory Compromise

- Arrives in the ICU after being found unresponsive in his room on the medical unit.
 - 20 years old, 75 kg, admitted 2 days ago with query liver dysfunction. Possible Oxycotin addiction
 - Vital signs:
 - HR 60
 - RR 8
 - BP 80/40
 - SpO2 97% on Non rebreathing mask at 15 l/m
- Minimally responsive – withdraws to pain

Patient with Respiratory Compromise

- What are your first concerns?

Patient with Respiratory Compromise

- Blood work is drawn

ABG:

pH: 7.19

pCO₂: 88

pO₂: 201

HCO₃⁻: 22

BE +2

Patient with Respiratory Compromise

- Interpret this blood gas
- Is this an acute or chronic condition?
- Is this person a candidate for NIV?
- Does this patient require intubation?

Patient with Respiratory Compromise

What would be appropriate initial ventilator parameters for this patient?

- Volume control, pressure control, pressure/volume mode?
- SIMV, Assist Control, Spontaneous/CPAP
- RR
- Inspiratory Time
- FiO₂

Patient with Respiratory Compromise

Your initial ABG on ventilation comes back:

pH 7.52

pCO₂ 28

pO₂ 100

HCO₃⁻ 22

BE 0

Patient with Respiratory Compromise

Interpret this blood gas

What changes (if any) would you make to the ventilator parameters?

Patient with Respiratory Compromise

- 3 hours later, patient begins to wake up.
- He is coughing and setting off the high pressure alarm. Spontaneous respirations are 20/min.
- What would you do?

Patient with Respiratory Compromise

After settling down, his spontaneous respirations are 6/min

- Is this patient a candidate for a spontaneous ventilator mode such as CPAP or pressure support?
- Is this patient a candidate for a support mode such as automode or MMV?

Patient with Respiratory Compromise

- Patient waking up after 6 hours of ventilation
- Spontaneous RR 25, SpO₂ 100% on 30%O₂ with minimal ventilator support
- How would assess extubation readiness?
- Would this patient be a candidate for NIV post extubation?