

VENTILATOR TROUBLESHOOTING

ANNOUNCE ISSUE: HYPOXIA / FAILURE TO VENTILATE / HIGH PRESSURES / RISING ETCO₂ / LOW MINUTE VOLUME

IMMEDIATE ACTION - OXYGEN TO 100% 

RAPID SCAN | PATIENT > MONITOR > VENTILATOR & CIRCUIT

CONFIRM ETCO₂ & CHEST RISE

IF NO CHEST RISE CONNECT TO SELF-INFLATING BAG

IF NO ETCO₂ WITH BAGGING THEN **FIX ETT**

PATIENT FACTORS



DYSSYNCHRONY - SEDATE / ANALGESE / PARALYSE

ASYMMETRIC CHEST RISE - ?ENDOBRONCHIAL INTUBATION
- ?PNEUMOTHORAX
- ?LUNG COLLAPSE

BODY SIZE/
HABITUS/
ABDOMINAL SIZE - HEAD UP
- GASTRIC TUBE
- TOLERATE HIGH PEAK PRESSURES (↑P_{max})

BRONCHOSPASM /
ASTHMA / DYNAMIC
HYPERINFLATION - BRONCHODILATORS, KETAMINE
- DECREASE I:E RATIO (↓I, ↑E)
- TOLERATE HIGH CO₂ & HIGH PEAK PRESSURES
- WITHDRAW ETT IF TIP AT CARINA
- CONSIDER TUBE DISCONNECT & PASSIVE EXHALATION
- ?SLOPED CAPNOGRAPH
- ?ABNORMAL FLOW-TIME CURVE
(see overleaf)

EQUIPMENT FACTORS



TRACHEAL TUBE - ?OBSTRUCTED
- ?POSITION
- ?CUFF

CIRCUIT - INTACT, CAPS CLOSED, SAMPLING LINES CONNECTED

VENTILATOR - POWER, OXYGEN, REAR PANEL NOT OBSTRUCTED
- P_{max} ALARM HIGH ENOUGH TO ALLOW VENTILATION

SEE OVER FOR HIGH PRESSURE ALARM TROUBLESHOOTING

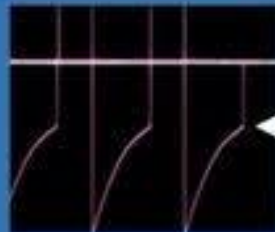
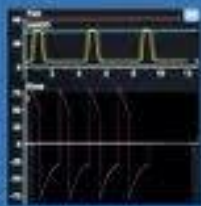
HIGH PRESSURE ALARM TROUBLESHOOTING

VENTILATION IS LIMITED TO 10 cmH₂O BELOW THE P_{max} SETTING
INCREASE P_{max} WHILE TROUBLESHOOTING (ALARMS → LIMITS 1)



RAPID DOPES SCAN

DISPLACEMENT	ETT IN MAIN BRONCHUS?
OBSTRUCTION	UPPER - BLOCKED ETT? LOWER - BRONCHOSPASM?
PNEUMOTHORAX	CONSIDER ULTRASOUND
EQUIPMENT	OCCLUSION IN CIRCUIT?
SYNCHRONY	FIGHTING? SEDATE/PARALYSE
STACKING	LOOK FOR DYNAMIC HYPERINFLATION



FLOW-TIME WAVEFORM
EXPIRATORY FLOW FAILS TO REACH
HORIZONTAL ZERO LINE BEFORE
INSPIRATION

STOMACH CONSIDER HEAD UP, GASTRIC TUBE

AIM TO KEEP PLATEAU PRESSURE ≤ 30 cmH₂O

WAYS TO FIND PLATEAU PRESSURE

- 1 MEASURED PLATEAU PRESSURE ON SCREEN 3 OF THE MONITORING TAB
- 2 PRESS INSPIRATORY HOLD BUTTON AND VIEW PRESSURE 
- 3 CALCULATE DRIVING PRESSURE VTE / C_{stat} (FOUND VIA MONITOR TAB)
PLATEAU PRESSURE = DRIVING PRESSURE + PEEP



REDUCING PLATEAU PRESSURE MAY REQUIRE REDUCING TIDAL VOLUMES TO 4 ml/kg AND TOLERATING HYPERCAPNIA