SEVERE ASTHMA

Life-threatening asthma & status asthmaticus

OXYGEN

steroids, salbutamol

LIFE-THREATENING SIGNS: silent chest · cyanosis · exhaustion · confusion · bradycardia / hypotension · SpO_2 < 92% · normal or RISING $PaCO_2$. Call for senior + ICU.

FIRST-LINE · ALL PATIENTS

start immediately, in parallel

OXYGEN

High-flow to keep SpO_2 94-98%.

SALBUTAMOL

5 mg nebulised, back-to-back / continuous; add ipratropium 500 mcg.

STEROIDS

Prednisolone 40-50 mg PO or hydrocortisone 100 mg IV; give early.

MAGNESIUM

$MgSO_4$ 2 g IV over 20 min for severe / life-threatening.

NOT RESPONDING?

escalate

- **IV bronchodilator -** salbutamol or aminophylline infusion (specialist); IV $MgSO_4$
- **Consider -** adrenaline (IM / neb) if anaphylaxis or peri-arrest
- **Ketamine -** bronchodilating induction agent if intubation needed
- **Get help -** ICU + anaesthetics early; these patients tire suddenly

IF VENTILATED

avoid dynamic hyperinflation

- LOW rate (8-10), low tidal volume, LONG expiratory time (I:E 1:4-5)
- Permissive hypercapnia; accept high $PaCO_2$ to avoid barotrauma
- Sudden hypotension → DISCONNECT for auto-PEEP; exclude pneumothorax
- Deep sedation ± paralysis; watch peak vs plateau pressures

WATCH & REASSESS: serial peak flow, SpO_2 and ABG. A NORMAL or RISING $PaCO_2$ in a tiring asthmatic is an emergency, not reassurance. Do not sedate on the ward.

GRADE THE SEVERITY

any one feature = that grade

Grade	Features
Moderate	PEF 50-75% best/predicted; talking normally; no severe features
Acute severe	PEF 33-50%; cannot complete sentences; RR ≥ 25; HR ≥ 110
Life-threatening	PEF < 33%; SpO_2 < 92%; silent chest, cyanosis, exhaustion, ↓ GCS; normal $PaCO_2$
Near-fatal	Raised $PaCO_2$ and/or needing mechanical ventilation

AFTER & DISPOSITION: admit all severe / life-threatening. Continue steroids 5 days, wean nebulisers. Do NOT discharge until PEF > 75%, stable off nebulisers, and inhaler technique + written asthma plan reviewed; arrange follow-up.

PEARLS & PITFALLS

- A rising or 'normal' $PaCO_2$ in acute severe asthma signals fatigue and impending arrest - escalate now.
- Intubation is high-risk: use ketamine, low rate and long expiration, and expect auto-PEEP.
- A silent chest is ominous - too little air moving to wheeze; prepare for deterioration.
- Sudden hypotension on the ventilator? Disconnect to let them exhale and exclude a pneumothorax.

References: BTS/SIGN Asthma 2019 · GINA 2024 · NICE Asthma · standard critical-care references.

Educational aid; verify doses against local protocol and patient factors.