MANAGEMENT OF ACUTE ASTHMA IN ADULTS

ASSESSMENT OF SEVERE ASTHMA

B **Healthcare professionals must be aware that patients with severe asthma and one or more adverse psychosocial factors are at risk of death.**

INITIAL ASSESSMENT

MODERATE ASTHMA

- increasing symptoms
- PEF >50-75% best or predicted
- no features of acute severe asthma

ACUTE SEVERE ASTHMA

Any one of:
- PEF 33-50% best or predicted
- respiratory rate ≥25/min
- heart rate ≥110/min
- inability to complete sentences in one breath

LIFE-THREATENING ASTHMA

In a patient with severe asthma any one of:
- PEF <33% best or predicted
- SpO_2 <92%
- PaO_2 <8 kPa
- normal $PaCO_2$ (4.6-6.0 kPa)
- silent chest
- cyanosis
- poor respiratory effort
- arrhythmia
- exhaustion, altered conscious level
- hypotension

NEAR-FATAL ASTHMA

Raised $PaCO_2$ and/or requiring mechanical ventilation with raised inflation pressures

Clinical features	Severe breathlessness (including too breathless to complete sentences in one breath), tachypnoea, tachycardia, silent chest, cyanosis or collapse *None of these singly or together is specific and their absence does not exclude a severe attack*
PEF or FEV_1	PEF or FEV_1 are useful and valid measures of airway calibre. PEF expressed as a % of the patient's previous best value is most useful clinically. In the absence of this, PEF as a % of predicted is a rough guide
Pulse oximetry	Oxygen saturation (SpO_2) measured by pulse oximetry determines the adequacy of oxygen therapy and the need for arterial blood gas measurement (ABG). The aim of oxygen therapy is to maintain SpO_2 94-98%
Blood gases (ABG)	Patients with SpO_2 <92% or other features of life-threatening asthma require ABG measurement
Chest X-ray	Chest X-ray is not routinely recommended in patients in the absence of: - suspected pneumomediastinum or pneumothorax - suspected consolidation - life-threatening asthma - failure to respond to treatment satisfactorily - requirement for ventilation

MANAGEMENT OF ACUTE ASTHMA IN ADULTS

CRITERIA FOR ADMISSION

B **Admit patients with any feature of a life-threatening or near-fatal asthma attack.**

B **Admit patients with any feature of a severe asthma attack persisting after initial treatment.**

C **Patients whose peak flow is greater than 75% best or predicted one hour after initial treatment may be discharged from ED, unless there are other reasons why admission may be appropriate.**

TREATMENT OF ACUTE ASTHMA

OXYGEN

C
- **Give supplementary oxygen to all hypoxaemic patients with acute severe asthma to maintain an SpO_2 level of 94-98%. Lack of pulse oximetry should not prevent the use of oxygen.**

A
- **In hospital, ambulance and primary care, nebulisers for giving nebulised β_2 agonist bronchodilators should preferably be driven by oxygen.**

STEROID THERAPY

A **Give steroids in adequate doses in all cases of acute asthma attack.**

✓ Continue prednisolone 40-50 mg daily for at least five days or until recovery.

OTHER THERAPIES

A **Nebulised magnesium is not recommended for treatment in adults with acute asthma.**

B **Consider giving a single dose of IV magnesium sulphate to patients with:**
- **acute severe asthma** (PEF <50% best or predicted) **who have not had a good initial response to inhaled bronchodilator therapy.**

✓ Magnesium sulphate (1.2-2 g IV infusion over 20 minutes) should only be used following consultation with senior medical staff.

B **Routine prescription of antibiotics is not indicated for patients with acute asthma.**

β_2 AGONIST BRONCHODILATORS

A **Use high-dose inhaled β_2 agonists as first line agents in patients with acute asthma and administer as early as possible. Reserve intravenous β_2 agonists for those patients in whom inhaled therapy cannot be used reliably.**

✓ In patients with acute asthma with life-threatening features the nebulised route (oxygen-driven) is recommended.

A **In severe asthma that is poorly responsive to an initial bolus dose of β_2 agonist, consider continuous nebulisation with an appropriate nebuliser.**

IPRATROPIUM BROMIDE

B **Add nebulised ipratropium bromide** (0.5 mg 4-6 hourly) **to β_2 agonist treatment for patients with acute severe or life-threatening asthma or those with a poor initial response to β_2 agonist therapy.**

REFERRAL TO INTENSIVE CARE

Refer any patient:
- requiring ventilatory support
- with acute severe or life-threatening asthma, who is failing to respond to therapy, as evidenced by:
  - deteriorating PEF
  - persisting or worsening hypoxia
  - hypercapnia
  - ABG analysis showing ↓ pH or ↑ H^+
  - exhaustion, feeble respiration
  - drowsiness, confusion, altered conscious state
  - respiratory arrest

FOLLOW UP

✓
- It is essential that the patient's primary care practice is informed within 24 hours of discharge from the emergency department or hospital following an asthma attack.
- Keep patients who have had a near-fatal asthma attack under specialist supervision indefinitely
- A respiratory specialist should follow up patients admitted with a severe asthma attack for at least one year after the admission.