

MANAGEMENT OF ACUTE ASTHMA IN ADULTS

ASSESSMENT OF SEVERE ASTHMA

- B** Health care professionals must be aware that patients with severe asthma and one or more adverse psychosocial factors (*psychiatric illness, alcohol or drug abuse, denial, unemployment, etc*) are at risk of death

- ☒ Keep patients who have had near fatal asthma or brittle asthma under specialist supervision indefinitely
- A respiratory specialist should follow up patients admitted with severe asthma for at least one year after the admission

INITIAL ASSESSMENT

MODERATE EXACERBATION

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

ACUTE SEVERE

Any one of:

- PEF 33-50% best or predicted
- respiratory rate $\geq 25/\text{min}$
- heart rate $\geq 110/\text{min}$
- inability to complete sentences in one breath

LIFE THREATENING

In a patient with severe asthma any one of:

- PEF <33% best or predicted
- SpO₂ <92%
- PaO₂ <8 kPa
- normal PaCO₂ (4.6-6.0 kPa)
- silent chest
- cyanosis
- feeble respiratory effort
- bradycardia, dysrhythmia, hypotension
- exhaustion, confusion, coma

NEAR FATAL

Raised PaCO₂ and/or requiring mechanical ventilation with raised inflation pressures

Clinical features	Severe breathlessness (including too breathless to complete sentences in one breath), tachypnea, tachycardia, silent chest, cyanosis or collapse <i>None of these singly or together is specific and their absence does not exclude a severe attack</i>
PEF or FEV₁	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 (ABG). The aim of oxygen therapy is to maintain SpO ₂ $\geq 92\%$
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 the absence of: <ul style="list-style-type: none"> - suspected pneumomediastinum or pneumothorax - suspected consolidation - life threatening asthma - failure to respond to treatment satisfactorily - requirement for ventilation

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CRITERIA FOR ADMISSION

- B** Admit patients with any feature of
- a life threatening or near fatal attack
 - severe 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 A&E, unless there are other reasons why admission may be appropriate

TREATMENT OF ACUTE ASTHMA

OXYGEN

- C** Give high flow oxygen to all patients with acute severe asthma
- A** Nebulised β_2 agonist bronchodilators should be driven by oxygen (hospital, ambulance and primary care)
- C** The non-availability of supplemental oxygen should not prevent nebulised therapy being given if indicated

STEROID THERAPY

- A** Give systemic steroids in adequate doses in all cases
- ☒ Continue prednisolone 40-50 mg daily for at least five days or until recovery

OTHER THERAPIES

- A** Consider a single dose of IV magnesium sulphate (1.2-2 g IV infusion over 20 mins) for patients with:
- acute severe asthma without a good initial response to inhaled bronchodilator therapy
 - life threatening or near fatal asthma
- ☒ IV Magnesium sulphate should only be used following consultation with senior medical staff
- B** Routine prescription of antibiotics is not recommended

β_2 AGONIST BRONCHODILATORS

- A** Administer high dose inhaled β_2 agonists as first line agents and administer as early as possible. Outside hospital high dose β_2 agonist bronchodilators may be delivered via large volume spacer or nebuliser
- ☒ In acute asthma with life threatening features the nebulised route (oxygen-driven) is recommended
- A** In severe asthma (PEF or FEV₁ < 50% best or predicted) and asthma that is poorly responsive to an initial bolus dose of β_2 agonist, consider continuous nebulisation

IPRATROPIUM BROMIDE

- A** Nebulised ipratropium bromide (0.5 mg 4-6 hourly) should be added 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, failing to respond to therapy, evidenced by:
 - deteriorating PEF
 - persisting or worsening hypoxia
 - hypercapnia
 - ABG analysis showing ↓ pH or ↑ H⁺
 - exhaustion, feeble respiration
 - drowsiness, confusion
 - coma or respiratory arrest