Acute asthma in adults - management in primary care

A-Z Local Care Maps - NDCCG & HCCG > Asthma > Acute Asthma in Adults - Management in Primary Care

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1 Care map information

Quick info:
Scope:
• diagnosis, assessment and management of acute and chronic asthma, in adults over age 16 years, in primary and secondary care, including:
  • non-pharmacological and pharmacological management
  • choice of inhaler devices
  • considerations for the care of adolescents over the age of 12 years
Out of scope:
• management of asthma in pregnancy
• management of asthma in children – see 'Asthma in children' care map
Definition:
• asthma is a chronic inflammatory disorder of the airways:
  • airway obstruction is widespread but variable
  • increase in airways hyper-responsiveness to certain triggers
  • obstruction is usually reversible, either spontaneously or with treatment
• acute asthma exacerbation is a term used to describe onset of worsening asthma symptoms
Prevalence:
• the most recent report states that 5.9% or 3.85 million people in the UK have asthma [20]
• about 2% of adults consult their GP annually with asthma [1]
Risk factors:
• family history of atopic disease, eg:
  • asthma
  • eczema
  • allergic rhinitis
  • allergic conjunctivitis
• co-existence of atopic disease
• male sex, for pre-pubertal asthma, and female sex, for persistence of asthma from childhood to adulthood
• bronchiolitis in infancy
• parental smoking, including perinatal exposure to tobacco smoke
• low birthweight – associated with intrauterine growth retardation
• premature birth, especially in extreme-preterm infants who required ventilatory support, with consequent chronic lung disease of prematurity
Complications:
• death – more than 1400 people died of asthma in the UK in 2002 [1]
• respiratory complications:
  • pneumonia
  • pulmonary collapse – atelectasis caused by mucus plugging of the airways
  • respiratory failure
  • pneumothorax
  • status asthmaticus – repeated asthma attacks without respite, or non-response to appropriate treatment
  • pneumomediastinum
• growth and pubertal delay in children may be a direct result of chronic disease or secondary to use of inhaled corticosteroids or repeated short courses of systemic corticosteroids – the growth-suppressive effects of the latter may be relatively short-lived
• impaired quality of life (QoL) may result from suboptimal control of asthma – this may include:
  • fatigue:
    • poor sleep
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1 Information resources for patients and carers

Recommended resources for patients and carers, produced by organisations certified by The Information Standard:

- **Asthma** (URL) from Asthma UK at [http://www.asthma.org.uk](http://www.asthma.org.uk)
- **Asthma** (URL) from Bupa at [http://www.bupa.co.uk/](http://www.bupa.co.uk/)
- **Asthma** (PDF) from Patient UK at [http://www.patient.co.uk](http://www.patient.co.uk)
- **Asthma - Peak Flow Diary** (PDF) from Patient UK at [http://www.patient.co.uk](http://www.patient.co.uk)
- **Asthma - Peak Flow Meter** (PDF) from Patient UK at [http://www.patient.co.uk](http://www.patient.co.uk)
- **Asthma medicines** (URL) from Bupa at [http://www.bupa.co.uk/](http://www.bupa.co.uk/)
- **Healthtalkonline** (URL) from DIPEx at [http://www.healthtalkonline.org](http://www.healthtalkonline.org)
- **Inhaled corticosteroids for the treatment of chronic asthma in adults and in children aged 12 years and over** (PDF) from National Institute for Health and Clinical Excellence (NICE) at [http://www.nice.org.uk](http://www.nice.org.uk)
- **Inhalers for Asthma** (URL) from Patient UK at [http://www.patient.co.uk](http://www.patient.co.uk)

For details on how these resources are identified, please see Map of Medicine's document on Information Resources for Patients and Carers (URL).

2 Updates to this care map

Quick info:

Date of publication: 31-Jul-2014

The clinical content of this care map has been accredited by the Royal College of Physicians (RCP).

Information on measuring fractional exhaled nitric oxide concentration in asthma has been added from:


Please see the care map's Provenance for additional information on references, accreditations from national clinical bodies, contributors, and the editorial methodology.

Date of publication: 31-Jul-2013

Information on the use of omalizumab for the treatment of allergic asthma has been added from:


Date of publication: 30-Apr-2013

The clinical content of this care map has been accredited by the Royal College of Physicians (RCP).

Date of publication: 31-Jan-2013

Information on inhaler use has been added from:

4 Acute asthma - primary care management

Quick info:
Patients who exhibit a combination of severe asthma and behavioural and psychosocial features are at risk of developing near-fatal or fatal asthma [2]:

- severe asthma is recognised by one or more of the following:
  - previous near-fatal asthma, eg previous ventilation or respiratory acidosis
  - previous admission for asthma especially if within the last year
  - requirement for three or more classes of asthma medication
  - heavy use of beta₂ agonists
  - repeated attendances at A&E for asthma care especially if in the last year
- adverse behavioural or psychosocial features are recognised by one or more of the following:
  - non-compliance with treatment or monitoring
  - failure to attend appointments
  - fewer GP appointments
  - frequent home visits
  - psychosis, depression, other psychiatric illnesses or deliberate self-harm
  - current or recent major tranquiliser use
  - denial
• alcohol or substance misuse
• obesity
• learning difficulties
• social isolation

An acute asthma exacerbation is characterised by [2]:
• sudden onset of shortness of breath and wheeze
• increased respiratory effort and decreased exercise tolerance

NB: Healthcare professionals must be aware that patients with severe asthma and one or more adverse psychosocial factors are at risk of death [2].

Reference:

5 Assess severity

Quick info:
Assess and record [2]:
• peak expiratory flow (PEF)
• symptoms and response to self-treatment
• heart and respiratory rates
• oxygen saturation (by pulse oximetry)

Reference:

6 Life threatening asthma

Quick info:
Assessment [2,4]:
• silent chest, cyanosis or poor respiratory effort
• arrhythmia or hypotension
• exhaustion, altered consciousness
• peak expiratory flow (PEF) less than 33% best or predicted
• oxygen saturation (SpO₂) less than 92%

NB: Patients may not be distressed [24].

References:

7 Acute severe asthma

Quick info:
Assessment [2,4]:
• cannot complete sentences
• respiration equal to or more than 25 breaths/minute
• pulse of 110 beats/minute or more
• peak expiratory flow (PEF) 33-50% best or predicted
8 Moderate asthma

Quick info:
Assessment [2,4]:
• speech normal
• respiration less than 25 breaths/minute
• pulse less than 110 beats/minute
• peak expiratory flow (PEF) more than 50-75% best or predicted
• oxygen saturation (SpO$_2$) equal to or more than 92%

References:

9 Treatment

Quick info:
Consider admission to A&E [2].
Treatment [2]:
• if available provide patient with oxygen to maintain an oxygen saturation (SpO$_2$) level of 94-98%
• beta$_2$ agonist either by nebuliser or via spacer:
  • nebuliser:
    • should be delivered by piped oxygen, cylinder capable of delivering a flow rate of 6L/min or greater, or air-driven nebuliser with supplemental oxygen [25]
    • salbutamol 5mg or terbutaline 10mg
  • via spacer – give 4 puffs initially (given separately, inhaled via tidal breathing [4]) and give a further 2 puffs every 2 minutes according to responses up to maximum of 10 puffs
• prednisolone 40-50mg or intravenous (IV) hydrocortisone 100mg

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- should be delivered by piped oxygen, cylinder capable of delivering a flow rate of 6L/min or greater, or air-driven nebuliser with supplemental oxygen [25]
- salbutamol 5mg or terbutaline 10mg
- if peak expiratory flow (PEF) more than 50-75% best or predicted – give prednisolone 40-50mg
- continue or step up usual treatment

'Breathing exercise programmes (including physiotherapist-taught methods) can be offered to people with asthma as an adjuvant to pharmacological treatment to improve quality of life and reduce symptoms.

Grade A Evidence

5.2.13 Breathing Exercises

Behavioural programmes centred on breathing exercises and hyperventilation reduction techniques (including physiotherapist-delivered breathing programmes such as the Papworth method, and the Butekyo method) can improve asthma symptoms, quality of life and reduce bronchodilator requirement in adults with asthma, although have little effect on lung function. These techniques involve instruction by a trained therapist in exercises to reduce respiratory rate, minute volume and to promote nasal, diaphragmatic breathing. Trials that include more than five hours of intervention appeared more likely to be effective. They can help patient’s experience of their condition and quality of life although do not affect lung function or airways inflammation. They should ideally be provided as part of integrated medical care.’

References:

11 Refer immediately to Emergency department

Quick info:
Refer any patients with features of acute severe or life threatening asthma to hospital [2].

Immediate treatment whilst waiting for ambulance [2]:

- if available provide patient with oxygen to maintain an oxygen saturation (SpO2) level of 94-98%
- beta2 agonist either by nebuliser or via spacer:
  - nebuliser:
    - should be delivered by piped oxygen, cylinder capable of delivering a flow rate of 6L/min or greater, or air-driven nebuliser with supplemental oxygen [25]
    - salbutamol 5mg or terbutaline 10mg
  - via spacer – give 4 puffs initially (given separately, inhaled via tidal breathing [4]) and give a further 2 puffs every 2 minutes according to responses up to maximum of 10 puffs

Reference:

12 Reassess patient

Quick info:
Measure and record peak expiratory flow (PEF) 15-30 minutes after starting treatment, and thereafter according to the response [2]. Admit to hospital if no response and progression to acute severe asthma [2].

Reference:
13  Reassess patient

Quick info:
Measure and record peak expiratory flow (PEF) 15-30 minutes after starting treatment, and thereafter according to the response [2]. Admit to hospital if no response and progression to acute severe asthma [2].

Reference:

15  If poor response - arrange admission

Quick info:
Criteria for admission:
• admit to hospital if there are any [2]:
  • life threatening features
  • features of acute severe asthma present after initial treatment
  • previous episodes of near-fatal asthma
• admission may be appropriate for patients who meet any of the following criteria:
  • still have significant symptoms [2]
  • concerns about compliance [2]
  • living alone/socially isolated [2]
  • psychological problems [2]
  • physical disability or learning difficulties [2]
  • exacerbation despite adequate dose of corticosteroid tablets prior to presentation [2]
  • presentation at night [2]
  • pregnancy [2]
  • patients with a history of severe uncontrolled asthma who live alone or where home circumstances do not allow adequate supervision [5]
Lower threshold for admission if [2]:
• attack occurs in late afternoon or at night
• recent hospital admission or previous severe attack
• concern over social circumstances or ability to cope at home
If admitting the patient to hospital [2]:
• stay with the patient until ambulance arrives
• send written assessment and referral details
• repeat beta₂ agonist via oxygen-driven nebuliser in ambulance

NB: If a patient has signs and symptoms across categories, always treat according to their most severe features [2].

References:

16  Good response

Quick info:
Observe to ensure that improvement continues until complete recovery achieved [2]. Consider repeating bronchodilator therapy after 10-20 minutes if needed [2]. Continue prednisolone 40-50mg daily for at least 5 days, or until recovery [2].

Reference:
17 If poor response - arrange admission

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• admit to hospital if there are any [2]:
  • life threatening features
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• admission may be appropriate for patients who meet any of the following criteria:
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If admitting the patient to hospital [2]:
• stay with the patient until ambulance arrives
• send written assessment and referral details
• repeat beta$_2$ agonist via oxygen-driven nebuliser in ambulance
NB: If a patient has signs and symptoms across categories, always treat according to their most severe features [2].

References:

18 Good response

Quick info:
If good response to first treatment (symptoms improved, respiration and pulse settling and PEF more than 50%) continue or step up usual treatment and continue prednisolone [2].

Reference:

19 Arrange review with patient

Quick info:

Follow-up [2]:

• advise regular bronchodilators
• review prednisolone
• address any trigger factors
• arrange review within 1 week
• discuss a clear plan for what to do if symptoms worsen

Reference:

20 Arrange review with patient

Quick info:
Follow-up [2]:
• advise regular bronchodilators
• review prednisolone, if given
• address any trigger factors
• arrange review within 1 week
• discuss a clear plan for what to do if symptoms worsen

Reference:
Key Dates

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