



Protocol for the management of difficult asthma in children

Summary

The difficult asthma protocol at The Children's Hospital for Wales is designed to structure appropriate investigation for children with asthma who have persistent symptoms despite significant treatment burden. It has been developed with reference to the Brompton paediatric difficult asthma protocol. The protocol is divided into 3 stages.

Aims of protocol

- Exclude other diagnoses
- Identify those patients who have environmental, social and psychological contributions to their illness.
- Clarify steroid responsiveness
- Clearly identify those patients who may benefit from Omalizumab therapy.

Inclusion criteria

1. Treatment thresholds

Poor control despite:

- Inhaled corticosteroids (> 500mcg/day fluticasone; > 800 mcg/day budesonide)
- LABA
- Failed trials or current treatment with Montelukast and/or oral theophyllines

Irrespective of control:

- Any child on maintenance systemic corticosteroids

2. Poor control of asthma is defined by any of the following

- Persistent symptoms (≥ 3 days/week)
- FEV1 <70% post-bronchodilator
- Repeated exacerbations (≥ 6 / year)
- Repeated severe exacerbations (≥ 2 /year)

Stage 1 Background (nurse-led)

- Background proforma
- Prescription check
- School check
- Home visit
- Lung function with reversibility testing (without exercise)
- CXR
- Asthma control test

Stage 2 Hospital admission

Tuesday

- Spirometry diary (twice/day)
- FeNO
- Lung function with reversibility testing (without exercise)
- FBC, immunoglobulins, Vaccine responses, total IgE
Specific IgE to cat, dog, horse, grasses, HDM, aspergillus, alternaria alternata, cladosporium
Fungal and avian precipitins
C3, C4, ANA, ANCA, RF, CRP, ESR, urine dipstick, blood pressure
- Nasal NO
- Asthma control test

Wednesday

- Spirometry diary (twice/day)
- Formal lung function, exercise test and reversibility testing (Paul Thomas, Llandough)

Thursday

- Ward round with discharge planning
- Spirometry diary (twice/day)
- Sweat test
- HRCT

Friday

- Spirometry diary (twice/day)
- Bronchoscopy (microbiology, AFB, cytology, viral PCR, lipid laden macrophages)
- IM Triamcinalone (single injection)

Stage 3 Assessment of steroid responsiveness

Two week ward review (nurse-led)

- Asthma control test
- Lung function with reversibility testing (without exercise)
- FeNO

Three week multidisciplinary difficult asthma meeting

- Outcomes discussed and treatment interventions agreed

Four week clinic appointment (named consultant)

- Asthma control test
- Lung function with reversibility testing (without exercise)
- FeNO
- Treatment options discussed

Treatment strategies

Omalizumab

All eligible patients irrespective of any other findings should have a trial of therapy

Fungal sensitization

3 month trial of itraconazole, check home environment for fungal exposure.

Steroid sensitive eosinophilic asthma, not eligible for omalizumab or failed trial

Long term daily or alternate day prednisolone with careful monitoring of side-effects

Steroid sensitive Eosinophilic asthma, not eligible for omalizumab or failed trial with intolerable side effects

Steroid sparing agent (methotrexate or cyclosporin)

Non-atopic asthma (persistently low FeNO, absence of eosinophils on BAL cytology)

Consider alternative diagnosis and reassess investigations

Consider empirical treatments for post nasal drip and GORD