

CHRONIC LUNG DISEASE - COPD AND BRONCHIECTASIS

Case Definition

Cough and sputum production most days for > 1 year **AND** airflow obstruction which is not fully reversible i.e.

- FEV1: FVC is < 70%** predicted value **and**
- FEV1 < 80%** predicted value **and**
- FEV1 checked before and 15 minutes after 2 puffs of salbutamol with spacer improves by less than 12%.

where:

FEV1 = forced expiratory volume in one second

FVC = forced vital capacity.

Screening

Every 2 years ask / note:

- cough/sputum** production on most days for > 1 year
- ≥ 3 episodes of **chest infection** in past year
- unexplained **shortness of breath**

Spirometry for anyone answering YES to any of the above questions **and** for anyone presenting to clinic with any of the above problems at any other time.

Principles of Management

- Smoking cessation is the only proven strategy to stop further deterioration of the lungs.**
- Spirometry is essential for diagnosis.
- PEFR (peak expiratory flow rate) is useful for monitoring.
- Salbutamol may give symptom relief.
- Long term use of oral prednisolone is NOT recommended.
- Long-term oxygen therapy (>15 hr/day) prolongs life in patients with significant hypoxaemia.
- Prompt treatment of exacerbations is required (see over).
- Pulmonary Rehabilitation (Physiotherapy) improves symptom control and lung function.

SEVERITY

The % predicted FEV1 correlates with disability and risk of premature death:

STAGE	% PREDICTED FEV1	IMPACT
Mild	60 - 80%	Reduced activity
Moderate	40 - 59%	If FEV1 < 50%, acute episodes may impact daily life / prognosis
Severe	< 40%	Extremely impaired quality of life, acute episodes life-threatening

BASELINE INVESTIGATIONS:

- Spirometry, before and 15 minutes after salbutamol 2 puffs via spacer (within 2 months of conditional diagnosis).
- Document maximum distance patient can walk on the flat without stopping.
- BMI: If high (> 25) see [HEALTHY LIVING](#). If low (< 20) refer/discuss with Dietician.
- Oxygen saturation on room air:
 - if O₂ saturation < 94% on room air, do/arrange arterial blood gas.
 - arrange echocardiogram if PaO₂ 55 - 60 mmHg on room air.
- Check puffer and spacer technique.
- FBC.
- ECG.
- CXR.
- Explore social and emotional well-being: depression and anxiety are common in people with serious chronic conditions.

For people with moderate-severe airflow obstruction AND < 40 years OR < 10 pack year smoking history, consider α1 antitrypsin deficiency or bronchiectasis.

Therefore check:

- α 1 antitrypsin genotype and level.
- if CXR shows **no** evidence of bronchiectasis, organise high resolution CT scan of chest.
- If bronchiectasis confirmed (on CT or CXR), organise immunoglobulin levels, IgG subclasses, CF (cystic fibrosis) genotype and sputum x 3 for AFB/mycobacterial culture.

Therapeutic Protocols

- ENCOURAGE SMOKING CESSATION.**
- Ensure **influenza** and **pneumococcal vaccines** are up to date (see [HEALTHY LIVING](#)).
- Refer Physiotherapy for Pulmonary Rehabilitation Plan (Graded exercise programme and breathing exercises).

DISEASE SEVERITY:

Mild: Salbutamol as needed via spacer.

Moderate: as above and **tiotropium** 18mcg daily via handihaler.

Severe: as above and **fluticasone** 500mcg bd.

CLD / ASTHMA COEXISTING:

i.e. FEV1 improves by >12% with salbutamol.

EXACERBATIONS/INFECTIVE EPISODES

If more than one episode per year: add **fluticasone** 500mcg bd.

N.B. Theophylline: may be useful if patient unable to use inhaled medications or these are of limited benefit. Requires monitoring and caution regarding interactions with other medications.

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Follow-up

INITIALLY

Review 2 weeks after any medication change and assess symptom control, PEFr and inhaler technique.

LONG TERM

2 yearly spirometry for all levels of severity.

Mild and moderate:

Review every 12 months.

Assess:

- **smoking** status - encourage patient to **quit**.
- progress of Pulmonary Rehab Programme.
- adequacy of **symptom control** (SOB, exercise tolerance, exacerbation frequency).
- **inhaler technique**.

Check:

- BMI.

Severe:

Review every 6 months.

Assess: as above.

Check: as above + oxygen saturation and FBC.

Women of Child Bearing Age

- The key to good management is optimisation of lung function.
- The benefits of inhaled medications usually outweigh the risks while pregnant or breastfeeding. Discuss with Doctor before ceasing medications.
- Pregnancy should be avoided in women with severe air flow obstruction.

Refer / Discuss

REGIONAL PHYSICIAN:

- Age of onset < 40 years.
- If when stable, $pO_2 < 60\text{mmHg}$ OR $pCO_2 > 50\text{mmHg}$.
- Coexistent right heart failure.
- $Hb > 180\text{g/L}$ and $Hct > 55\%$ on 2 occasions after excluding dehydration.
- Unable to wean oral steroids after acute exacerbation.
- If planning a flight.
- Lack of response to therapies suggested in guideline.
- Severe disease to assess suitability for lung volume reduction surgery or lung transplantation.
- Assessment for long term oxygen therapy.

PALLIATIVE CARE: End stage CLD.

ACUTE EXACERBATIONS

Defined as person having 2 out of 3 of:

- increasing cough.
- increasing purulence of sputum.
- increasing SOB / medication requirements.

Management:

1. ANTIBIOTIC: **amoxicillin** 500 mg tds for 5 days.
2. STEROID: **prednisolone** 50mg daily for 5 days (unless confirmed bronchiectasis).
3. SPUTUM COLLECTION for MC&S if no improvement after 72 hours of amoxicillin.
4. ADMISSION if severe CLD or prior intubation / non-invasive ventilation.
5. If increased frequency of exacerbations, repeat baseline assessment and consider alternative diagnoses.