Inhaled Treatment Algorithm for COPD

LAMA – long-acting antimuscarinic
LABA – long-acting beta$_2$ agonist
ICS – inhaled corticosteroid

Step 1

SABA (Salbutamol)

Symptomatic

Step 2

Regular LAMA and continue SABA. Inhaler choice:-
Tiotropium 10mcg daily (Braltus)
If patients do not tolerate tiotropium, consider **glycopyrronium (Seebri Breezhaler) 50mcg daily**

If LAMA not tolerated/inappropriate, consider a LABA**; indacaterol (Onbrez Breezhaler 150mcg daily)** preferred choice

Still symptomatic

Step 3

Offer LAMA/LABA combination inhaler and continue SABA as required. LAMA/LABA inhaler choice:
Glycopyrronium 43/Indacaterol 85 (Ultibro Breezhaler®) 1 puff once daily.

If patients do not have the dexterity to use the Ultibro Breezhaler, then consider using **Aclidinium/ Formoterol 340/12 (Duaklir Genuair®) or Vilanterol/ Umeclidinium 22/55 (Anoro Ellipta)**

Frequently exacerbating and still symptomatic

Given the serious concerns about ICS side effects when weighed against their very modest benefits, physicians should focus on dual bronchodilator (LAMA/LABA) therapy for the majority of patients and reserve triple therapy for the minority who suffer frequent exacerbations (>2 per year)

Step 4

LABA/ICS + LAMA and continue SABA
Inhaler choices:-
DuoResp Spiromax 160/4.5 (budesonide/formoterol) 2 puffs BD /
DuoResp Spiromax 320/9 (budesonide/formoterol) 1 puff BD
+
Glycopyrronium (Seebri Breezhaler) 50mcg daily OR tiotropium (Braltus) 10mcg daily.

If patients do not have sufficient inspiratory effort to use DPI, consider using **Fostair 100/6 MDI (Beclomethasone/Formoterol) 2 puffs BD via spacer**.
Or a LAMA/LABA/ICS combination inhaler
Trimbow MDI (beclomethasone/formoterol/glycopyrronium) 2 puffs BD via spacer
(preferred option)
or
Trelegy Ellipta (fluticasone furoate/umeclidinium/vilanterol) 1 puff daily

For patients initiated on ICS review the patient for benefit. If no benefit stop ICS and return to LABA/LAMA.

Treatment algorithm for COPD: supporting notes

The COPD treatment algorithm aims to rationalise the treatment choices when prescribing for patients with COPD. It has been collated pragmatically, with consideration of the clinical evidence for each drug (efficacy and safety), patient factors (ease of use of the inhaler device etc.) and cost considerations.

The following notes briefly explain the reasoning behind some of the choices made:

Step 2

- Long acting antimuscarinic antagonist (LAMA) chosen as 1st- line long-acting bronchodilator as studies have demonstrated the superiority of LAMAs over Long acting beta agonists (LABA) for the treatment of COPD.
- Tiotropium chosen as 1st-choice LAMA due to the wealth of evidence of efficacy and safety compared with newer LAMAs (preferred brand Braltus).
- Glycopyrronium chosen as 2nd-choice LAMA due to evidence of reduction of exacerbations, reduced hospital admissions for COPD and greater experience of use compared with other LAMAs.
- If LAMA inappropriate or patient intolerant, the 1st-choice LABA is indacaterol as there is some evidence of superiority over other LABA's. It is appreciated that formoterol (when delivered via the EasyHaler device) is cheaper than indacaterol, but the EasyHaler device has a very high internal resistance and so requires a much greater inspiratory effort to use the device.

Step 3

- If patient still symptomatic, offer a combination LAMA/LABA inhaler. 1st-line is glycopyrronium 43/ indacaterol 85 (Ultibro Breezhaler) because:
  - simplicity of dosing (one inhaler vs. two inhalers and once daily dosing).
  - cheaper acquisition cost
  - evidence of improved QoL, improved FEV_1 and trend towards reduced exacerbations.
  - the Breezhaler device has a low internal resistance (making it easier for patients with poor inspiratory effort to use).

Step 4

- Patients suffering 2 or more exacerbations per year: consider a LABA/ICS + LAMA inhaler.

  The additional efficacy of ICS in COPD added to LAMA/LABA is very modest and needs to be carefully weighed against the known risks of triple therapy (as well as the additional cost).

  Reassuringly, the TRIBUTE study of Trimbow (ICS = beclomethasone dipropionate) v Ultibro did not show an increase in pneumonia in a trial situation. Furthermore, Trimbow is a MDI requiring less respiratory effort than a dry powder inhaler (DPI), which may be an advantaged in patients with severe COPD who are candidates for triple therapy.

  The IMPACT study for Trelegy (ICS = fluticasone furoate) showed a 50% increase in pneumonia and is delivered via a DPI requiring greater inspiratory effort and therefore may be less suitable for patients with advanced COPD

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