# Referrology Series: Ep 7 – COPD (Dr Andrew Li)

#### Paradigm Shift in COPD Classification (00:00)

- · FEV1 dissociated from symptom classification to better guide treatment
- · FEV1 severity does not correlate with symptoms, but has prognostic value
- Current treatment intent: Symptom control and reducing number of exacerbations Not so much on altering FEV1

#### Spirometry in COPD (02:49)

- · Spirometry should be performed out of an acute exacerbation
- · Can start treatment first prior to diagnostic confirmation with spirometry
- · Spirometry should be checked annually in COPD patients
- · Rate of FEV1 decline provides prognostic indicator

#### Which treatments have mortality benefit? (04:39)

- Smoking cessation
- · LTOT in appropriate subgroup
  - o PaO2<55
  - PaO2<60 with
- · Nocturnal NIV in patients with chronic T2RF

# Pharmacological Treatment (05:33)

- Principles
  - o Intent of treatment: For COPD, mainly that of symptom relief through bronchodilation
  - Device Type
  - Patient's Comorbidities: COPD patients are generally older, hence device suitability is an important consideration
  - o Cost

#### Medication

| LABA                        | LAMA  | LABA + LAMA  | ICS + LABA  |
|-----------------------------|---|--|---|
| Olodaterol<br>(Respimat)    | <b>Tiotropium (Spiriva)</b> –<br>Handihaler, Respimat | <b>Spiolto</b><br>(Tiotropium/olodaterol;<br>Respimat)         | Seretide<br>(fluticasone/salmeterol;<br>evohaler and accuhaler) |
| Indacaterol<br>(Breezhaler) | <b>Glycopyrronium</b><br>(Seebri) – Breezhaler        | <b>Ultibro</b><br>(Glycopyrronium/indacaterol<br>; breezhaler) | <b>Symbicort</b><br>(budesonide/formoterol;<br>turbuhaler)      |
|                             | <b>Umeclidinium</b><br>(Incruse) – Ellipta            | <b>Anoro</b> (Umeclidinium, vilanterol; ellipta)               | Flutiform<br>(fluticasone/formoterol;<br>MDI)                   |
|                             |   |  | <b>Relvar</b><br>(fluticasone/vilanterol;<br>ellipta device)    |



#### Devices

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• MDI: MDI, Evohlaer

§ Needs coordination

- Dry Power Inhaler: Turbuhaler, ellipta, breezhaler, accuhaler
  - No coordination but needs stronger inspiratory force
- Soft Mist Inhaler: Respimat
  - No coordination and strong inspiratory force needed more particles and particles leave inhaler more slowly, hence more enters lungs
- Practical Approach
  - First line: LAMA (+ PRN SABA)
    - § Usually Tiotropium (Respimat) Cheaper
    - § LAMA favoured over LABA (POET COPD, NEJM 2011 and INVIGORATE Lacent RM 2013)
  - Second line: LAMA + LABA (+ PRN SABA)
    - § Anoro (Umeclidinium/Vilanterol; Ellipta): Cheapest, has a dose indicator
    - § Spiolto (Tiotropium/Olodaterol; Respimat): Good if have difficulty coordinating/performing strong inspiratory force/good mouth seal; can be used with a aerochamber
  - Third line: LAMA + LABA + ICS (+ PRN SABA)

- § ICS usually added on for reduction of exacerbations; can use eosinophil count to guide But if eosinophil count is high, think whether it is asthma vs COPD with eosinophilia
- § Usually use a LABA+LAMA combination, then add on a separate ICS emerging triple therapy devices

# Who should be referred for pulmonary rehab? (16:47)

- · Guidelines suggest benefit for GOLD B-D
- To refer shortly after recent hospitalisation (GOLD guidelines suggest <4 weeks)
- Contraindications: Severe pulmonary hypertension, physical limitations (BKA, very poor baseline function)
- · Multi-modality: Comprises nutrition, breathing techniques, physiotherapy exercises

#### LTOT (18:20)

- · Indications: PaO2 55mmHg (or SaO2<88%) OR PaO2 >55 < 60 mmHg with right heart failure or erythrocytosis
- Prescribe supplemental O2 to titrate SaO2 > 90%
- At least 16 hours a day Based out of MRC trial and NOTT trial in 1980s
- · Patients need to stop smoking prior to initiation

### Nocturnal NIV (18:59)

- · Indication: Pronounced daytime persistent hypercapnia (PaCO2 ≥ 52mmHg)
- Usually based on outpatient ABG record after acute exacerbation has settled

# Surgery/Intervention (20:45)

- Intention: Help to remove bullae/emphysema to bring length tension ratio of muscle into a more optimal state to improve work of breathing
- Lung Volume Reduction Surgery
  - Predominant upper lobe emphysema
  - If FEV1 and DLCO < 20%, not a good candidate for surgery
  - o NETT Trial 2008

#### Palliative Care and EOL Planning (23:20)

- Always optimize treatment first, then reassess symptom status
- Prognostication to be contextualized alongside other comorbidities
- · Start ACP assessment early
- · Role for palliative consult: Very symptomatic despite optimal treatment

# Antimicrobial Considerations (26:10)

- Up to 50% due to viruses
- · Bacteria wise, similar microbiological profile to CAP
- · Atypical infections generally rarer
- Controversial role for long term macrolides (Azithromycin) BACE trial (2019), Azithromycin for Prevention of Exacerbations of COPD (NEJM, 2011)

#### Respiratory Support in COPD (27:38)

- Aim 88-92% of SpO2 in chronic T2RF
- Role of HFNC in COPD still not established
- Role of NIV generally for decompensated T2RF if patient comes in with severe T1RF, important to evaluate for other causes (pneumonia, heart failure etc)

# Take Home Points (29:23)

• Principles: Purpose, type of device, comorbidities, finances, patient's understanding

- · Adjuncts: Pulmonary rehab, LTOT, NIV
- · Endoscopic treatment an emerging space
- Consider NIV in decompensated T2RF (not needed if compensated)
- · Choose Venturi mask over nasal prongs for O2 delivery in patient with T2RF