**COPD Case Study: 17th February 2015 from 8-9pm ‘Meet John, our COPD patient’.**

**This Case Study was adapted from ‘Drugs in Use’ book (4th Edn)**

**Screen 1**

John, a 68 year-old male, has been feeling unwell for the last 5 days, and feels ‘out of breath’ and wheezing more. He could not walk further than 5m, from his chair to the toilet. He has a worsening productive cough and has been producing yellow/green sputum. He calls his GP surgery in the morning, and tells the receptionist of his symptoms, and is scheduled an appointment with his GP, later that afternoon. His wife accompanies him and says he has become too breathless, at times to even speak or eat. The patient feels quite confused and disorientated.

**PMH:** COPD, Type 2 Diabetes (controlled by diet only), admitted a month ago with chest infection.

**Height:** 70 kg, 175cm

**Current Meds:**

* Salbutamol 100 micrograms MDI, 2 puffs when required upto 4 times daily.
* Clenil Modulite (Beclometasone dipropionate) 100mcg MDI CFC-free inhaler: 2 puffs twice daily with spacer device.

**Social Hx:** Heavy smoker smoking 20 cigarettes/day since 14 years old (54 pack-years). Currently lives in 3-bedroom house along with his wife. Recently retired 8 years ago as a factory storekeeper. Gave up alcohol around 5 years ago.

**Allergies:** nil & NKDA.

He underwent spirometry, a few weeks ago and the results show:

* FEV1: 1.56L (Predicted FEV1: 3.07L)
* FVC: 2.28L
* FEV1/FVC: 0.68 (68%)
* 51% of Predicted FEV1 normal

His GP, Dr Kingston referred him to the hospital, and he is admitted to the Respiratory Ward, via A&E. Examination revealed reduced breath sounds, widespread expiratory wheeze and generalised hyper-resonance. He was centrally cyanosed, and his SpO2 levels were between 84 - 85%.

**Q1) What issues can you identify with his current therapy, what therapies should be initiated upon admission, and how would you monitor this patient?**





**Screen 2**

At the hospital, the respiratory consultant prescribes:

* Salbutamol 5mg nebules every 4 hourly via nebuliser
* Ipratropium bromide 500mcg nebules every 6 hourly via nebuliser
* Prednisolone 30mg OD P.O
* Co-amoxiclav 1.2g IV every 8 hours
* Administered 2L/min O2 via nasal cannulae

Capillary Blood Glucose was carried out, given his diabetic history. His SpO2 improved to 92%. After John was given these drugs, the patient’s condition started to improve with little (improved) breathlessness and wheeze at rest, with minimal coughing and sputum production and no cyanosis. However, John experiences tremors.

**Q2) Why is John experiencing tremors and what do you need to do?**

**Screen 3**

As a result, the salbutamol dose was reduced to 2.5mg every 6

hours and tremors subsided. The next day, John is feeling better and is eligible for early discharge. However, you notice that John has been ‘feeling down’ throughout his hospital stay.

Planned Discharge Medicines:

* Doxycycline 200mg BD for 48 hours, and then 200mg OD for 5 days,
* Tiotropium (Spiriva®) 18mcg OD via HandiHaler device
* Salbutamol 100mcg/dose MDI: 2 puffs PRN
* Prednisolone 30mg OD for 7 days

Today’s lab results were all within normal range, except the Fast Blood Glucose showing 10 mmol/L.

**Q3) What do you think of the discharge medicines? Is there anything missing? Does the patient need to be referred to whom and/or why?**





**Screen 4**

Whilst the patient is stabilised and due to be discharged, his wife speaks to you, and asks how can she manage her husband’s condition and what support is available?

**Q4) What support services should be provided to the patient? Is he a candidate for a telemonitoring/telemedicine service? What are your views?**

**Screen 5**

Before discharge, the consultant decides to discuss smoking cessation.

The patient indicates he has tried several NRT products, which have been recommended by his local pharmacist. But John has heard from his friends about e-cigarettes, and he wonders whether this would help him in quitting smoking.

**Q5) What would be your advice to John about the use of e-cigarettes?**



**Answers:
Q1):**

* **John has been treated as an asthmatic patient.**
* **Review current therapy, in order to manage his COPD**
* **Pharmacological treatment is different between Asthma & COPD.**

**Optimise therapy:**

* **Beclometasone dipropionate** CFC-free or any ICS - not licensed for patients with COPD (unless prescribed in combination. with a LABA). Managing COPD as asthma may lead to overuse of steroids. Inhaled steroids are indicated for nearly all asthmatics, but only for COPD patients with severe or very severely reduced FEV1 (defined as FEV1 *<*50%) with frequent exacerbations. However, it is important to question him carefully about his exacerbation history: more than half of COPD patients fail to report life-threatening exacerbations. In addition, his currently prescribed dose of inhaled beclometasone would not be high enough to manage his COPD and reduce the risk of exacerbations. The benefits of inhaled corticosteroids in patients with COPD have only been observed using high-range dosing (e.g. fluticasone 1000 micrograms daily or budesonide 800 micrograms daily). An inhaled corticosteroid combined with a LABA may be an appropriate option for Mr LT.
* **Bronchodilators** may be underused if people with COPD are managed as asthmatics. In symptomatic patients the cornerstone of management of breathlessness in COPD is inhaled bronchodilation. Although they do not significantly improve lung function (FEV1), bronchodilators improve breathlessness, exercise capacity Short-acting bronchodilators such as salbutamol, terbutaline or ipratropium are given for relief of intermittent breathlessness and can be used regularly throughout the day, often at higher than licensed doses. This level of bronchodilator use in people with asthma would be regarded as a sign that the asthma is poorly controlled and the person’s treatment may need optimising. Furthermore, in contrast to asthma, anticholinergic drugs

such as ipratropium are as effective as, or more effective than, beta2- agonists and are thus indicated in the management of stable COPD. It would be logical to prescribe ipratropium therapy up to four times a day for John to help control intermittent breathlessness, with salbutamol added on a ‘when required’ basis to supplement this if necessary. If his symptoms persist it may be appropriate for Mr LT to be prescribed a long-acting bronchodilator, either a long-acting antimuscarinic (LAMA) or LABA.

* **Initiate:** Antibiotics, Steroids**.**
* **Monitor:** Blood Glucose via BM Stix, Respiratory Rate

***Q2 :*** Tremors caused by high dose of Salbutamol, hence dose needs to be reduced to 2.5mg every 4 hours (or if worsening every 2h)

**Q3):** Treatment looks fine. Patient should be counselled with antibiotics (ie finish the course completely) and taking steroids (best to take in the morning after food, and 6 tablets x 5mg in one go)

**Q4: Some considerations include:**

* Pulmonary Rehabilitation
* Diabetes (and whether referral needs to be made?)
* Adherence and Inhaler Technique (does Mr LT know how to use MDI and DPI) & Discharge MUR.
* Other Tx to be prescribed alongside steroids
* Smoking Cessation (views on e-cigarettes?)
* Social Care & Mental Health?
* Advised: annual pneumococcal vaccine (protect against streptococcus pneumonia) and influenza vaccines.

**Q5)** There isn’t that much evidence regarding use of e-cigarettes. E-Cigarettes haven’t been regulated as yet.

Include if asked: Chest X-RayXR shows hyperventilated lung fields with peribronchial thickening, but no focal consolidation and no pneumothorax