Respiratory Newsletter focus on Asthma Management **August 2019**

What is asthma: Asthma is an airway disease in the lungs with narrowing and inflammation of the smaller airways – it is caused by an immunity imbalance in the lungs and is no longer regarded as an allergic condition.

The three key changes in the lungs are

1. swelling of airway walls due to inflammation – smaller airways are known as bronchi
2. constriction of airway muscles – causing broncho-spasm
3. Over sensitive airways – which react to various air allergens/pollen/dust/cold air and viruses - with tightening/constriction of airways

Understanding asthma

- Asthma is both variable in symptoms and also in degree of airflow obstruction. Airflow obstruction can be measured by peak flow or spirometry. Peak flow in asthma should vary by more than 20% before and after treatment. Using a peak flow diary with am/pm readings over 2 weeks is a reliable way for showing this reversibility.

- Symptoms can also vary considerably in the same day being lowest in the early morning between 4am and 6am – which is the vulnerable time for asthma attacks. This is quite unlike COPD where lung function may vary but is always low and never normal.

- In good phases asthmatic lung function may be normal and the patient can be symptom free. However if patient has cough/wheeze symptoms and on the same day has a normal peak flow - this is usually NOT asthma. Other causes of breathlessness should be considered particularly anxiety and hyper-ventilation. [See *Nijmegen scoring*]

- The underlying airway inflammation does not go away without prolonged treatment with inhaled steroid treatment – around 2 years of daily treatment is the minimum. This inflammation is the cause of airway instability – so asthma attacks can rapidly come on if patients stop their protective ‘preventer’ steroid inhalers because they feel well.

- The airways in asthma are ‘twitchy’ or hyper-reactive so can go into spasm more easily than non-asthmatics. Common triggers that can cause airway spasm include - dust/pollen/diesel/paint & fumes; pets like cats/dogs/birds.

- Changes in weather from hot to cold and the common cough/cold viruses. Foggy weather and thunderstorms can lead to asthma attack ‘epidemics’.

- Cigarette smoke; hay fever and acid reflux can also make asthma symptoms worse.

- While 80% of asthma starts in childhood it may also start in adult life. Sometimes asthma can go into remission in teenage years only to come back 20-30 years later. It is better therefore to tell asthmatics they are in remission if they have had no asthma symptoms for over 2 years as it can return.

Asthma diagnosis and better management

Asthma Diagnosis is based on symptoms of cough; tightness in chest, wheeze and breathlessness. Out of these wheeze is by far the most important. Use 'suspected asthma 'code while doing a steroid inhaler trial of treatment. If positive response to either 4 weeks inhaled corticosteroids or 20% reversibility with 4 puffs salbutamol CHANGE code to 'asthma' i.e. confirmed. Peak flow diary with 20% variability using morning and evening readings over 3-4 weeks is another way to diagnose asthma.

- **Asthma attacks can be fatal**: Inhaled steroid/ ICS is now essential core therapy – salbutamol only at step 1 has been removed in the 2016 BTS guidelines. Explaining this to patients as part of disease education helps ICS compliance. Uncontrolled asthma can become life-threatening – upto 500 patients a year die from asthma attacks which can often come 'out of the blue'; inform patients of this fact.75% asthma deaths were regarded as preventable {NRAD study UK 2015}.

- **Asthma medications not working?** Check compliance and observe inhaler technique first. Smoking blocks asthma inhalers working properly – they have an anti-steroid effect. Review spirometry or peak flow diary. Up to 30% 'asthmatics' may be misdiagnosed says NICE 2015. Panic attacks and hyperventilation top the list. Obesity - unfit; restrictive lung disease; heart problems like angina/heart failure and viral wheezers are also mislabeled as asthma.

- **Personalised asthma action plans** are the keystone for patient education and successful self-management. They improve compliance, reduces A&E admissions and asthma deaths. Look at ASTHMA UK or EMIS/VISION template links.

- **High salbutamol use**: is a danger sign either of poor asthma control or poor patient understanding of asthma self-management. 1-2 blue inhalers per year is all one should need if your asthma is under control i.e. for emergency use only. Invite all high salbutamol users [>10 inhalers/year] for urgent asthma review as they are the highest risk group for fatal asthma attacks. Prescription clerks can add a warning to scripts.

- **Exercise is good for asthma**: Having asthma shouldn't stop you doing exercise – over 20 Olympic athletes in the UK team have asthma and they have won a lot of medals too! Regular exercise improves your lung strength.

- **Asthma cure?** Using a steroid inhaler regularly – everyday can cure asthma in many patients especially children with asthma – but this will take at least 2 years of regular treatment. [Bronchial hyper-reactivity studies]. Asthma can become INACTIVE for years but can also come back rapidly and be ACTIVE again.

- **Atopy/ "allergy" is present in 80% asthmatics and is linked to high levels of body/blood IgE:** This can cause asthma/eczema and hayfever**.** Many "atopic" asthmatics will not achieve good asthma control without hayfever/nasal symptom control. Nasal steroids and anti-histamines can both help with this.

- **Asthma onset after age 40yrs** – Asthma usually starts in childhood and younger adult life and is less common to start after age 40. So look for occupational causes; heart disease and COPD. Chest x-ray and spirometry with reversibility testing can help.

- **Poor asthma control can evolve into COPD**: Children with 'weak lungs' due to fetal poor growth/ Respiratory virus [RSV] /childhood pneumonias or poorly controlled asthma can progress to COPD. This is called the "*early life origin*" theory of COPD and is backed by the Framingham Offspring study. Upto 40% of more severe asthmatics can get Asthma-COPD overlap syndrome or ACOS. Inhaled steroid is essential first line therapy for this group; then consider adding in long acting bronchodilators. NICE recommends ICS/LABA for this pattern of airway damage.

Annual asthma reviews:

1. Check the diagnosis – Is their 20% or more variability in peak flow over time. Over-diagnosis and under-treatment are the main problems in asthma care. In asthma - daily Inhaled Steroid [ICS] is now the gold standard from BTS and NICE step one.

2. Correct asthma medication as per NICE 2018 guidelines. Use **Right breathe website** to check if correct inhaler is being used and show the inhaler device video.

3. Inhaler choice; compliance and technique: using In-check device to check inspiratory flow rate and lung power by peak flow or FEV1 for expiratory effort.

4. Written Asthma Action plans – so that asthma symptoms and attacks are properly identified and controlled at an early stage and red flags are understood.

5. Aim for TOTAL asthma control – or RCP3 score of zero + NO blue/salbutamol usage – upto 75% of asthmatics can reach this goal. {GOAL study group 2004}.

- ***SMART/MART regimes*** in asthma have become more popular due to a large range of ICS/LABA 2 in1 inhalers. This means the inhaler dose can be varied form 2 puffs a day when stable upto 8 puffs a day when asthma symptoms get worse. This should be used without using blue/salbutamol inhalers; as the LABA [formeterol] portion is even better than salbutamol at opening up the airways quickly. This regime cannot be used with *seretide* /salmeterol.

- **Monteleukast Tablet in asthma:** This non steroid tablet blocks inflammatory chemicals in the lungs and upper airways [nose/sinuses] and is particularly useful in children from the age of 6 months onwards. A four week trial will identify the patient's response to this therapy. NICE draft proposals even suggest it for adult asthma as it is the only effective tablet therapy which avoids the problems of inhaler technique/compliance.

- **The local CCG has a good flowchart of asthma inhalers** based on BTS stepped care strategy or use the BTS guide as per Right-breathe website.

Dr A.N.Banik Respiratory Lead SKC CCG: a.banik@nhs.net