Asthma and airway inflammation

Asthma is a disease of chronic inflammation to the airways and is the most wide-spread non-communicable condition globally, affecting around 300 million individuals.  

Asthma varies in severity and frequency from person to person and can be characterised by recurrent attacks of breathlessness, coughing and wheezing.

During an asthma attack, inflammation occurs in the bronchial tubes, this restricts the airways which reduces airflow into and out of the lungs.

References:
4. Porsbjerg C. Combining the Mannitol Test and FeNO in the Assessment of Poorly Controlled Asthma [Internet]. ResearchGate. 2017 [cited 10 October 2017]. Available from: https://www.researchgate.net/publication/274264134_Combining_the_Mannitol_Test_and_FeNO_in_the_Assessment_of_Poorly_Controlled_Asthma

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The use of FeNO measurements in asthma care with the FeNO monitor

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Fractional exhaled nitric oxide

Nitric oxide is produced by your body to help combat inflammation and when your airway is inflamed, NO is produced in the lungs and exhaled on the breath.

Airway inflammation is a central process in asthma and other lung diseases\(^1\). Being able to detect eosinophilic airway inflammation and monitor a patient’s response to treatment is regarded as a gold standard in the management of respiratory diseases.

FeNO can be used as a non-invasive biomarker of airway inflammation to help differentiate between eosinophilic and neutrophilic asthma, as well as between asthma and other respiratory conditions.

Using FeNO measurements to evaluate airway inflammation in asthma represents a significant advance in respiratory medicine\(^2\), but until now it has been an expensive test to deliver in every day practice.

Benefits of performing FeNO tests:

- Non-invasive, quick and easy to perform\(^2\)
- Shows a patient’s response to treatment, enabling the correct prescription of medication and safer/monitored adjustments
- Shows patient compliance to medication
- Shown to be superior to the majority of conventional tests of lung function, such as peak flow recording and spirometry\(^2\)
- Aids in identifying patients who do/do not require on-going treatment\(^3\)
- Aids in differentiating between allergic (eosinophilic) and non-allergic asthma\(^4\).

How to use FeNO testing in asthma care initial assessments

For the diagnosis of asthma, FeNO testing can be used with individuals who are showing symptoms in their initial assessment. To confirm asthma, FeNO measurements should be completed in combination with other diagnostic tests, such as, the mannitol test and the sputum test.\(^5,6\)

Management and control

Regular FeNO measurements in asthma management support sufferers who are symptomatic despite using prescribed medication. By correctly interpreting FeNO levels, treatment and therapy can be altered accordingly. If used daily, FeNO measurements can help to predict exacerbations and attacks.\(^7\)