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White Paper

Andy Roebuck, Vitalograph

Fractional exhaled nitric oxide (FeNO) testing in asthma

Nitric Oxide (NO) is recognised as a biological inflammatory mediator which plays a key role in lung biology and is present in exhaled breath. It has been widely proven that NO has been associated with the pathophysiology of many lung diseases, including asthma¹. The National Institute for Health and Care Excellence (NICE) have recently published guidance on measuring FeNO concentration in asthma² to aid in supporting earlier diagnosis and management of the condition.

In 2011 the ATS/ERS committee stated that FeNO is recommended for diagnosis of eosinophilic airway inflammation and for determining the likelihood of steroid responsiveness in individuals with chronic respiratory symptoms, possibly due to airway inflammation. It also stated that it may be useful to assess whether airway inflammation is contributing to poor asthma control, particularly in the presence of other contributors (e.g. rhinosinusitis, anxiety, or continued allergen exposure).

The Department of Health (2011) reported that there are 4.1 million GP consultations for asthma every year, with the cost of asthma to the NHS of around £1 billion per year. Poorly controlled asthma is responsible for accident and emergency attendances, and both elective and non-elective admissions to hospital. An estimated 70% of the admissions being potentially preventable if appropriate early interventions had been in place³.

In the absence of a gold standard definition of type, severity or frequency of symptoms in asthma it may not be possible to make clear evidence based recommendations on how to make a diagnosis⁴; however, the availability of a wide range of clinical assessments can aid accurate diagnosis and effective disease management. However, the wider the range of clinical assessments made available that can be carried out, may aid in supporting a diagnosis and assist with management of the condition.

FeNO testing is intended to be carried out in conjunction with other diagnostic options according to the BTS/SIGN guideline on the management of asthma⁴. With a relatively quick and simple test procedure this could serve as an important tool alongside the already established methods of clinical work-up of asthma diagnosis and management.

References:

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3. Department of Health (2012). An Outcomes Strategy for COPD and Asthma: NHS Companion Document. Published to DH website, in electronic PDF format only. www.dh.gov.uk/publications
4. British Thoracic Society and Scottish Intercollegiate Guidelines Network (2014). British guideline on the management of asthma: A national clinical guideline. <https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2014/>