MEASURING EXHALED NITRIC OXIDE (FENO) IMPROVES ASSESSMENT OF AIRWAY INFLAMMATION AND GUIDES TREATMENT DECISIONS

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Background

Assessment of patient’s symptoms and lung function frequently underestimates underlying asthma severity, airway inflammation and risk for future asthma exacerbations. We hypothesized that adding the measurement of fractional exhaled nitric oxide testing (FeNO) to the patient's clinical assessment at the point of care and will provide insights into underlying airway inflammation. This added information helps practitioners to improve asthma control by making stepwise changes in anti-inflammatory treatment.

Method

Physicians were invited to participate if they had not used FeNO before in their practice. Physician assessed the likelihood of airway inflammation using clinical measures. Patient’s FeNO was then determined using a NIOX® device. Based on the FeNO result, physicians recorded what changes in drug therapy were made.

Results

Data from 337 physician practices which included 7,901 patients with asthma were available for analysis. Clinical impression of airway inflammation matched the actual FeNO in 4,457 patients (56.4%). Anti-inflammatory treatment was changed based on the FeNO result in 2,429/7,901 patients (30.7%). High FeNO group of 852 patients (83.90%) were on ICS, ICS/LABA or OCS therapy versus the Low FeNO group of 3312 patients (65.20%) who were on ICS, ICS/LABA or OCS therapy.

Conclusion

Assessing airway inflammation in asthma is improved by the measurement of FeNO at the point of care. This leads to clinically relevant changes in anti-inflammatory treatment. More frequently, clinicians stepped up steroids when FeNO was high compared to stepping down when FeNO was low. Additional research is needed to understand why inhaled corticosteroid treatment is not stepped down more frequently.
## Baseline Steroid Use

<table>
<thead>
<tr>
<th>Baseline Steroid Use</th>
<th>ICS</th>
<th>ICS/LABA</th>
<th>OCS</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High FeNO (based on actual FeNO) n=1016</td>
<td>337</td>
<td>411</td>
<td>104</td>
<td>852</td>
<td>83.90%</td>
</tr>
<tr>
<td>Low FeNO (based on actual FeNO) n=5083</td>
<td>1405</td>
<td>1666</td>
<td>241</td>
<td>3312</td>
<td>65.20%</td>
</tr>
</tbody>
</table>

![Pie chart showing distribution of high and low FeNO groups](chart.png)