Results Optimal cut-off values for automatically detected inspiratory and expiratory wheezing were 2% and 3%, respectively. The resulting sensitivity of inspiratory and expiratory wheezing were 83.3% and 84.6%, and the specificity 78% and 82.5%, respectively (Figure). The inter-rater agreement was moderate with a Fleiss’ Kappa of 0.59 for inspiratory wheezing and 0.54 for expiratory wheezing.

Conclusion Computerised lung sound analysis is feasible already during the first months of life and provides quantitative and noninvasive information about the extent of wheezing, whereas the assessment by trained clinicians was subjective and only moderate in inter-rater agreement.

**Introduction**

Fraction of exhaled nitric oxide (FeNO) is a biomarker of eosinophilic airway inflammation, determining airway responsiveness to inhaled corticosteroid treatment and atopy. It is a non-invasive, reproducible, simple and safe method of measuring airway inflammation that provides a complementary tool to other ways of assessing airways disease, including asthma.

**Methods**

Retrospective descriptive study. The data of 99 paediatric patients attending outpatients in paediatric pneumology (from July 2012 to June 2013) with 2 consecutive measurements of FeNO was included. Characteristics of sex, age, exercise-induced asthma, prick test, FeNO, forced expiratory volume (FEV1), asthma control test (ACT) and baseline asthma treatment were analysed.

The variations in FeNO, ACT, exercise-induced asthma and FEV1 after intensifying or initiating treatment were collected.

**Results**

99 patients, 46 men and 53 women were included. The mean age of the study population was 12.5 years (5–17) with an initial average ACT of 20.13 (10–25), FEV1 of 78% (42–132%) and an initial FeNO of 51.02 (7–170). 95.8% had a positive prick test. 45 exercise tests were performed, in 18 (40%) of them a decrease in FEV1 >10% was found. 15.2% of the patients were not taking any treatment at the first visit, 23.3% received Smart therapy (long-acting beta2- agonists and inhaled corticosteroids), 20.2% beta2- adrenergic agonist, 15% therapy, Smart + montelukast, inhaled corticosteroids 13.1% and 13% other combined therapies.

A statistically significant decrease in FeNO to 31.9 t = 6.594 (p = 0.000) was found after starting treatment, intensifying or modifying basic treatment. A statistically significant correlation was found between FeNO decrease and ACT improvement r = 0.0398 (p = 0.000) and FEV1 r = -0.260 (p = 0.01) between the first and the second visit.

**Conclusions**

The decrease in airway inflammation correlates with an increased subjective control of the disease and also with a higher forced expiratory volume. In our series of patients these results were achieved increasing Smart treatment therapy, as well as adding inhaled corticosteroid in patients not previously taking, including other treatment options. The value of FeNO also served to identify non-compliant patients.