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| **Evaluating the Clinical Utility of Routine Nasal Nitric Oxide** |
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| **Introduction/Aim:** Nasal nitric oxide (nNO) testing is recommended as a screening tool for the assessment of impaired ciliary motion abnormalities in diseases such as Primary Ciliary Dyskinesia (PCD) and Bronchiectasis (BE). The range of normal is not well defined in these patient populations, nor is the routine clinical utility of this test. This study aims to evaluate (a) the viability of nNO in routine clinical assessment and (b) explore the range of values within our patient population.**Method:** nNO was measured in healthy volunteers and specific disease groups as part of routine clinical assessment. Disease subgroups included PCD, BE, Cystic Fibrosis (CF) and Asthma/BE. A closed velum manoeuvre was performed using a stationary electrochemical sensor (Medisoft FeNO). Repeated nNO measures were used to assess clinical utility over time, correlating values with FEV1. Comparisons of nNO were made for the whole cohort, and between healthy and diseased subgroups. Statistical analysis included: Kruskal-Wallis, Dunns multiple comparisons, Wilcoxon test and linear regression. **Results:** 96 participants (79 females) were included with a mean age 60.1 ±18.9(SD).

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|  | **Control** | **PCD** | **BE** | **CF** | **Asthma/BE** |
| **Subjects** | 9 | 8 | 66 | 3 | 10 |
| **Mean** (nL/min-1) | 200 ±52(SD) | 29 ±19(SD)\* | 139 ±83(SD)\* | 153 ±66(SD) | 172 ±92(SD) |
| **Minimum** (nL/min-1) | 114.3 | 9.5 | 3.25 | 109 | 13.75 |
| **Maximum** (nL/min-1) | 281.8 | 67.75 | 599 | 228.8 | 282 |

\*indicates a statistical difference between the control group and subgroupThe non-parametric ANOVA between all groups was significant (P=<0.0001). Dunns multiple comparison of the control group versus disease subgroups showed statistical difference for only the PCD (P=<0.0001) and BE (P=0.0275) subgroups.The Wilcoxon test on repeated measures (n=18) showed no significant difference in nNO (P=0.1704) between first (95%CI 86.6, 169) and second test (95%CI 89.4, 169). The linear regression between FEV1 and nNO was not significant (R2=0.064, P=0.1203)

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|  | **Test 1** | **Test 2** |
| **Subjects** | 18 | 18 |
| **Mean** **nNO** (nL/min-1) | 514.6 ±308.8(SD) | 569.67 ±379.8(SD) |
| **Mean FEV1** (L/sec) | 1.9 ±0.99(SD)  | 1.92 ±1.09(SD) |

**Conclusion:** A differentiation was seen between the control group and the BE and PCD subgroups. Test re-test confidence of repeated measures inferred that nNO was reproducible however no correlation with FEV1 was seen. More data is required to comment on the utility of routine nNO measurements and its value to clinical assessments.**Key Words:** Nasal Nitric Oxide**Grant Support: N/A** |