|  |
| --- |
| **Feasibility of home-based oscillometry monitoring in paediatric Cystic Fibrosis** |
| Tamara L Blake1, Kathleena Condon1, Sophia Panochini2, Peter D Sly1, Paul D Robinson1,2 |
| *1Children’s Health and Environment Program, University of Queensland, Queensland, Australia*  *2Department of Respiratory and Sleep Medicine, Queensland Children’s Hospital, Queensland, Australia* |
| **Introduction/Aim:** Oscillometry (OSC) is an effort-independent and highly sensitive technique that can detect changes in peripheral airway function better than spirometry. Home monitoring studies have shown benefit of monitoring day-to-day variability in OSC variables in paediatric asthma patients, but information on the utility in paediatric cystic fibrosis (CF) remains unclear. In this pilot study, we evaluated feasibility of, and changes in, OSC variables within 6–11-year-old patients commencing Trikafta.  **Methods:** Patients aged 6-11 years due to commence Trikafta were recruited from the Queensland Children’s Hospital CF clinic. Following training and installation in the home, daily OSC measurements were performed as 30sec triplicate trials (tremoflo-C2, Thorasys, CA) along with a daily respiratory symptom questionnaire. Feasibility, changes in conventional OSC variables and day-to-day variability during exacerbation (APEx) or Trikafta use were evaluated. Day-to-day variability was expressed as coefficient of variation (CoV) in R5, X5 and AX.  **Results:** Nine patients (5 female, mean±SD 10.2±1.2 years-old) completed monitoring for 49±18 (min-max 29-85) days, including Trikfata use for 21±7 (9-26) days. Technically acceptable data were collected on all days where tests were attempted. Feasibility was 79% based on total eligible days (348/441; 47±17 days per patient) and 82% omitting days where away from home-based equipment (348/424 days; 39±15 days per patient). Four participants experienced an APEx during the baseline period, with three commencing oral antibiotics. Compared to baseline (symptom free), OSC variables increased during exacerbation and improved with Trikafta use, although not reaching statistical significance (p>0.05) due to limited pilot data (table – results reported as median (25th-75th%).   |  |  |  |  | | --- | --- | --- | --- | |  | Baseline, well | Baseline, APEx | During Trikafta | | R5 (cm H2Os/L) | 5.25 (5.03, 6.23) | 5.87 (5.38, 6.51) | 5.14 (4.56, 5.64) | | X5 (cm H2Os/L) | -1.76 (-1.90, -1.70) | -2.08 (-2.64, -1.48) | -1.54 (-2.03, -1.16) | | AX (cm H2Os/L) | 19.5 (16.3, 27.6) | 36.1 (24.1, 43.2) | 14.5 (12.6, 17.5) | | R5 CoV (%) | 10.9 (8.1, 12.6) | 13.2 (10.4, 13.4) | 8.4 (7.1, 11.6) | | X5 CoV (%) | 25.3 (20.2, 28.1) | 27.4 (23.2, 29.6) | 17.1 (15.4, 25.5) | | AX CoV (%) | 32.9 (32.2, 37.4) | 24.8 (24.2, 31.8) | 25.5 (22.0, 34.5) |   **Conclusion:** In-home monitoring using OSC was feasible with good adherence over extended periods in CF children aged 6-11 years. Results suggest changes in conventional OSC variables and day-to-day variability occur during exacerbation and with introduction of Trikafta, supporting further studies in larger cohorts to define clinical utility in this setting.  **Grant Support:** TLB is supported by a Children’s Hospital Foundation ECR Fellowship. Thorasys Ltd supplied oscillometry devices for use in this study. |