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| **Lung clearance index is elevated in children and adolescents with bronchiectasis** |
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| **Introduction:** The lung clearance index (LCI) is a marker of ventilation inhomogeneity from the multiple breath gas washout (MBW) test. LCI is a sensitive marker of lung disease in children and adolescents with cystic fibrosis (CF) but has not been assessed extensively in (non-CF) bronchiectasis. We aimed to determine whether LCI is abnormally elevated in children and adolescents with bronchiectasis.  **Methods:** We comparedMBW outcomes in children and adolescents with bronchiectasis (n=14; 10.97 ± 3.13 years, 56% male) to age- and sex-matched healthy controls (n=16) and children with CF (n=16). Nitrogen MBW data were collected using the Eco Medics Exhalyzer® D device, analysed using Spiroware 3.3.1, and quality controlled according to international guidelines. Data are presented as mean ± standard deviation.  **Results:** There were no differences in age, height, weight, body mass index, or sex ratio between the groups (p > 0.05). LCI was significantly elevated (worse) in children and adolescents with bronchiectasis (7.68 ± 1.37) compared with healthy controls (6.45 ± 0.79; p=0.02). The mean LCI values were similar between children and adolescents with bronchiectasis and CF (7.38 ± 1.44; p = 0.99) and the same proportion of individuals with bronchiectasis (57%) and CF (56%) had LCI values above the upper limit of normal (LCI > 7.1). FRC values were not different between groups (bronchiectasis :1.35 ± 0.57; CF :1.26 ± 0.42; healthy: 1.49 ± 0.69; p=0.48).  **Conclusion:** These preliminary data indicate that LCI is able to differentiate between children and adolescents with bronchiectasis and healthy controls, and is elevated to the same degree as in individuals with CF. Next steps will be to examine relationships between LCI and markers of disease severity (spirometry, exacerbations, extent of lung disease on CT) and assess how LCI changes over time in children and adolescents with bronchiectasis.  **Grant Support:** Future Health Research and Innovation Fund (WANMA2021/1 Ramsey). NHMRC AusBREATHE project grant. |