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Cystic fibrosis children with tracheobronchomalacia change to positive pressure airway clearance treatments

Introduction: Tracheobronchomalacia (TBM) reduces airway stability during coughing. Identifying presence of TBM in children with cystic fibrosis (CF) is important as it impacts choice of airway clearance (AWC) treatments.

Aim: To investigate impact of timing and persistence of TBM diagnosis on AWC routines in children with CF.

Methods: This is a descriptive cohort study. A retrospective audit of bronchoscopy reports performed until the age of four on children with CF born between 2001 and 2016 at Perth Children's Hospital was conducted. TBM presence, persistence (present on more than one bronchoscopy) and severity (described as 'severe' on the bronchoscopy report) was identified and data collected on AWC routines was obtained from the medical record.

Results: Data was obtained from 167 children (694 bronchoscopies). Sixty-eight children had a finding of TBM. Of these, 63 (93%) had an AWC routine prescribed before TBM was identified. After TBM identification, 41 (60%) required a change in AWC with 31 (76%) directly related to TBM diagnosis. In 24 (59%) children, AWC changed to positive pressure (PEP) based therapy within 3 months of the first TBM finding.

Twenty-nine children had persistent and severe TBM. 2 were using PEP prior to TBM finding, 15 changed to PEP within 3 months of the first TBM finding and 7 more changed within 12 months. Five did not change to PEP with 4 of these having significant medical or social issues.

Conclusion: Early identification of TBM, and assessment of persistence and severity of TBM is important to enable the most effective AWC regimes to be prescribed.

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