

Dynamics of clinical, radiological and biochemical parameters in children with bronchiectasis receiving a comprehensive individualised treatment programme

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Conflict of interest: none

BACKGROUND. A comprehensive individualised treatment programme in children with bronchiectasis is an important part of care. It includes an airway clearance techniques (ACT), which is a guideline-recommended standard of care in children with bronchiectasis, yet long-term paediatric data on their effect on quality of life, radiological severity and neutrophilic inflammation are lacking.

OBJECTIVE. To assess 12-month changes in quality of life, exacerbation and hospitalisation rates, lung function, radiological severity and neutrophil elastase (NE/ELA2) in children with non-cystic fibrosis bronchiectasis.

MATERIALS AND METHODS. Prospective single-centre before – after study of 50 children aged 2-17 years with bronchiectasis (paediatric bronchoarterial ratio >0.8) who received an individualised ACT programme with a written BAMP-UA action plan; azithromycin was added in the frequent exacerbator phenotype ($n=9$). Outcomes were assessed at 12 months.

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RESULTS. The BC-QoL-UA score increased by 0.98 points (95 % confidence interval 0.77-1.30); 61.2 % of children reached the minimal important difference. Exacerbations fell from 2.24 to 0.28 and hospitalisations from 1.66 to 0.06 per patient-year. Forced expiratory volume in 1 second rose by 5.51 percentage points of predicted. The Reiff score fell by 0.80 points; no child deteriorated and bronchiectasis regressed completely in 4 (8.0 %). NE/ELA2 fell by 36.4 % (all changes $p<0.001$).

CONCLUSIONS. The comprehensive programme was associated with improved quality of life, fewer respiratory events, better lung function and regression of radiological severity; the absence of a control group precludes causal inference.

KEY WORDS: bronchiectasis, children, airway clearance, Reiff score, neutrophil elastase, azithromycin, quality of life, BC-QoL-UA.
