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Editorial

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Chronic respiratory diseases in children cause significant morbidity and burden for children and their families and are often challenging to diagnose and treat.

This issue of BRN Reviews includes a series of articles that review some chronic diseases, including bronchiectasis, primary ciliary dyskinesia and chronic pulmonary aspiration. It also includes an overview of the importance of exercise training in children with chronic respiratory disorders and a review of recent advances in home non-invasive ventilation.

Pediatric bronchiectasis differs significantly from adult bronchiectasis in terms of diagnostic criteria, etiology, and management strategies. Early diagnosis is essential. Optimal treatment primarily aims to reduce inflammation and infection, which can prevent progression and even reverse normal airway structures[1]. Garriga-Grimau et al.[2] review the pathophysiology, diagnosis, and management of bronchiectasis in children.

Primary ciliary dyskinesia (PCD) is a rare respiratory disorder caused by defects in ciliary structure and function that impair mucociliary clearance. More than 50 genes causing PCD have been described, allowing the genetic cause to be identified in approximately 70–80% of patients[3]. In recent years, considerable progress has been made in the knowledge and management of this disease. The identification of many causative genes and a deeper understanding of its pathophysiology have allowed progress in the development of specific therapies for this disease. Rovira-Amigo et al.[4] update the current knowledge on the clinical aspects, management, diagnosis, and treatment of PCD.

Chronic aspiration is a relatively common problem in children, but the true prevalence is not well known because it is not easy to diagnose. It typically occurs in patients with underlying conditions such as anatomical malformations like laryngeal clefts or tracheoesophageal fistulas, central nervous system and neuromuscular disorders, or gastroesophageal reflux. Understanding the conditions associated with these disorders is essential to suspect their existence and adopt a multidisciplinary approach to achieve an accurate

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diagnosis and appropriate therapeutic management. Campanario-Cariño et al.[5] review the pathophysiology and symptoms of chronic aspiration in children, the best diagnostic methods, like video fluoroscopic swallowing test or fiberoptic endoscopic evaluation of swallowing, and the therapeutic approach[6].

Physical activity significantly improves quality of life and well-being of children[7]. Chronic respiratory diseases affect children's ability to engage in daily activities and exercise. An exercise program can improve cardiorespiratory and muscular fitness and positively impact psychological and social health in these children. Exercise also has an immunomodulatory role through the release of anti-inflammatory cytokines from muscle[8].

Bascuas-Arribas and Sanz-Santiago[9] review how different chronic respiratory diseases in children, such as asthma, cystic fibrosis, interstitial lung diseases, bronchopulmonary dysplasia, bronchiolitis obliterans or primary ciliary dyskinesia, may affect exercise response and exercise capacity. They review how exercise programs can contribute to their improvement and give specific recommendations on the type of training for each disease.

Torrent and Amin[10] update the current status of long-term home non-invasive ventilation (NIV) in children, with a particular focus on the management of children with neuromuscular diseases. The use of NIV in children has increased significantly over the last two decades, with a 5-30-fold increase in the prevalence of children treated[10]. Several factors have contributed to this trend, including improved survival rates for children with complex medical conditions, a shift towards home care, advances in NIV technology, and increased acceptance and familiarity of NIV technologies among healthcare providers[11].

REFERENCES

1. Chang AB, Bush A, Grimwood K. Bronchiectasis in children: diagnosis and treatment. Lancet. 2018;392:866–79.
2. Garriga-Grimau L, Polverino E, Moreno-Galdó A. Bronchiectasis in paediatrics. BRN Rev. 2025;11(1):3–14.
3. Wallmeier J, Nielsen KG, Kuehni CE, Lucas JS, Leigh MW, Zariwala MA, et al. Motile ciliopathies. Nat Rev Dis Primers. 2020;6:77.
4. Rovira-Amigo S, Caballero-Rabasco A, Castillo-Corrullon S, Baz-Redon N. Primary ciliary dyskinesia. BRN Rev. 2025;11(1):15–32.
5. Campanario-Cañizo A, Gil-Sánchez J, Peña-Zarza JA, Figuerola-Mulet J. Chronic pulmonary aspiration in children. BRN Rev. 2025;11(1):33–46.
6. Espitaliera F, Fanousb A, Avivc J, Bassiounyd S, Desutere G, Nerurkarf N, et al. International consensus (ICON) on assessment of oropharyngeal dysphagia. Eur Ann Otorhinolaryngol Head Neck Dis. 2018;135: S17-S21.
7. Janssen I, Leblanc AG. Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. Int J Behav Nutr Phys Act. 2010;7:40.
8. Scheffer DD, Latini A. Exercise-induced immune system response: anti-inflammatory status on peripheral and central organs. Biochim Biophys Acta Mol Basis Dis. 2020;1866:165823.
9. Bascuas-Arribas M, Sanz-Santiago V. Exercise and chronic pulmonary diseases in pediatrics. BRN Rev. 2025;11(1):47–62.
10. Torrent-Vernetta A, Amin R. Long-Term Non-Invasive Ventilation in Pediatric Neuromuscular Diseases: Challenges and Advances. BRN Rev. 2025;11(1):63–77.
11. Chatwin M, Tan HL, Bush A, Rosenthal M, Simonds AK. Long term non-invasive ventilation in children: impact on survival and transition to adult care. PLoS One 2015; 10:e0125839.