DOI: doi.org/10.47363/JPRRR/PediaCare2026/2026(8)4

PediaCare 2026: Research in Pediatrics, Neonatology and Pediatric Infectious Disease Care

Conference Proceedings May 26, 2026 - (Virtual)

Pulmonary Function in School-Aged Preterm Children with a History of Bronchopulmonary Dysplasia (BPD): A Single-Center Greek Cohort Study and Comparative Literature Review

Dr. Doxa Kotzia

Director, Paediatric Respiratory Medicine, Iaso Children's Hospital, Athens, Greece

Abstract

Introduction: Preterm children with bronchopulmonary dysplasia (BPD) frequently demonstrate persistent abnormalities in pulmonary function testing. Long-term follow-up clinical data from Greece remain limited.

Objective: To evaluate pulmonary function, exercise capacity, and respiratory quality of life in school-aged children (>6 years) with BPD followed at a major Pediatric Pulmonology Center, and to compare our findings with those reported in the international literature.

Methods: Thirty children (aged 6–12 years; mean age 8.6 ± 1.9 years) born at <32 weeks of gestation with a history of BPD were evaluated. Assessments included spirometry (FEV1, FEV1/FVC ratio, bronchodilator responsiveness), the 6-minute walk test (6MWT), respiratory quality-of-life assessment using the PedsQL score, and neonatal risk factors (duration of mechanical ventilation, systemic corticosteroid use, and home oxygen therapy). Multivariable analysis was performed to identify predictive factors associated with impaired pulmonary function.

Results: Mean predicted FEV1 was 84 ± 14%. A total of 38% of children had FEV1 <80% predicted, while 29% had FEV1/FVC values below the lower limit of normal (LLN). Bronchodilator responsiveness was observed in 34% of participants. The mean 6MWT distance was 520 ± 65 m, with 34% performing below age-related reference values. Hospitalization during the previous year occurred in 22% of patients, and 46% required inhaled corticosteroid therapy. Independent predictors of reduced FEV1 included severe BPD ($\beta = -0.45$, $p<0.001$), prolonged mechanical ventilation >14 days ($\beta = -0.31$, $p=0.002$), postnatal corticosteroid administration ($\beta = -0.28$, $p=0.01$), and exposure to passive smoking ($\beta = -0.25$, $p=0.02$). Comparative literature demonstrates similar pulmonary function deficits (~10–20% lower predicted FEV1), increased airway obstruction, and comparable exercise limitations, supporting the validity of our findings.

Conclusions: A substantial proportion of Greek preterm children with BPD exhibit persistent airway obstruction, exercise limitation, and impaired respiratory quality of life during school age. Early identification of neonatal risk factors may facilitate targeted interventions and close follow-up, highlighting the need for structured long-term care.