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Title: Assessment of pulmonary function by impulse oscillometry in young children with bronchopulmonary dysplasia

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Body: The aim of study was changes in parameters of impulse oscillometry while assessing pulmonary function in children aged 3 to 5 who had artificial lung ventilation in early neonatal period for respiratory distress syndrome. We have evaluated data of 46 children; 8 patients had history of classical bronchopulmonary dysplasia (BPD) (GroupA), while 38 patients had new BPD (Group B).Ventilation function of the respiratory tract was studied by impulse oscillometry (IO). Patients in both groups did not differ in anthropometric parameters. The IO was conducted in accordance with standard methods. All the children adequately followed the required procedure.Analysis of the results has shown that IO parameters in patients of both groups did not differ considerably ($p>0,05$), but they were considerably different from their due values. However, patients with classic bronchopulmonary dysplasia showed a larger decrease in Xrs5 compared to the due value ($p<0,01$) than Group B patients, which may imply greater destruction of elastic structures of peripheral respiratory tract.

Table 1

IO-parameter	due parameters	group A	group B
Zrs, kPa/(l/s)	1,09 + 0,02	1,18 + 0,08	1,26 + 0,05
Rrs5, kPa/(l/s)	1,03 + 0,02	1,07 + 0,07	1,17 + 0,04
Xrs5, kPa/(l/s)	-0,33 + 0,005	-0,50 + 0,04	-0,46 + 0,03
Rf , Hz	18,48 + 0,03	23,27 + 1,18	22,4 + 0,37

Therefore, assessment of ventilation function with new, more sensitive methods helps not only to diagnose respiratory disorder, but also to determine specific mechanisms of these disorders in patients whose

respiratory function cannot be fully assessed with traditional methods.