Bronchopulmonary dysplasia (BPD) or chronic pulmonary disease is a recognized complication of prematurity which impacts different organ systems, most significantly lung function and neurocognitive development. Classic BPD is defined as the need for supplementary oxygen at the age of 28 days or the need for 30% or more supplementary oxygen and/or positive pressure ventilation at the corrected age of 36 weeks in newborns born before 32 weeks gestation. There are many reported treatment modalities (systemic and inhaled corticosteroid therapy, inhaled nitric oxide, vitamin A, caffeine, diuretics and bronchodilators), however in all large meta-analyses reported to date none of the modalities including pul-monary intervention and neurocognitive development. Classic BPD is defined as the need for supplementary oxygen at the age of 28 days or the need for 30% or more supplementary oxygen and/or positive pressure ventilation at the corrected age of 36 weeks in newborns born before 32 weeks gestation. There are many reported treatment modalities (systemic and inhaled corticosteroid therapy, inhaled nitric oxide, vitamin A, caffeine, diuretics and bronchodilators), however in all large meta-analyses reported to date none of the modalities showed a substantially better efficacy in comparison to the others.

We are presenting a case of a premature newborn born to a 40-year-old mother. This was a second pregnancy, which was uncomplicated until the 23rd week of gestation when premature prelabour rupture of membranes occurred, after which the mother received dexamethasone prophylaxis. At 26 weeks and 6 days of gestation a male premature newborn was born by spontaneous vaginal delivery. Apgar scores were 4, 5, and 7 at 1, 5, and 10 minutes of life respectively, birth weight was 920 grams, body length 35 cm. After primary resuscitation and stabilization in the delivery room he was transferred to the NICU, positive pressure ventilation was commenced and he received surfactant. He was extubated on day 8 of life, however even after numerous attempts at treatment (including low dose systemic and inhaled corticosteroid therapy, amiphylline, caffeine) it was not possible to reduce the need for additional oxygen, which, in combination with typical chest X-ray changes, led to confirming the diagnosis of BPD. Additionally, he developed retinopathy or prematurity (ROP), which was treated by intravitreous application of anti-VEGF with very good response. On 2D brain ultrasound a grade 2 intraventricular hemorrhage (IVH) was seen, that remained stable during follow up and the MRI at 40 weeks corrected gestational age was normal. At 3 months of age, considering persisting need for supplementary oxygen, therapy with oral theophylline and inhaled fluticasone was commenced, after which the need for supplementary oxygen reduced to 0.1-0.2 L/min and the lung auscultatory findings were improved at discharge. Outpatient follow-up was continued – including pulmonologist, neuropsychiatrician, rehabilitation specialist, speech therapist. At 9 months of age (6 months corrected age) the infant doesn’t require supplementary oxygen and has satisfactory weight gain. Further multidisciplinary follow-up of growth and development is essential, as well as lung function monitoring, which will determine management of therapy with theophylline and fluticasone.

Although there is no specific diagnostic test or therapy for children with BPD, careful selection of therapeutic modalities as well as methodical medication adjustment can significantly contribute to prevention, elimination or significant reduction of symptoms in children with BPD.