

Stem cells to treat lung disease in preterm infants

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Advances in neonatal care for very preterm infants have greatly increased the chances of survival for these fragile infants. However, preterm infants have an increased risk of developing bronchopulmonary dysplasia (BPD), a serious lung disease, which is a major cause of death and lifelong complications. In a new study scheduled for publication in *The Journal of Pediatrics*, researchers evaluated the safety and feasibility of using stem cell therapies on very preterm infants to prevent or treat BPD.

Won Soon Park, MD, PhD, and colleagues from Samsung Medical Center and Biomedical Research Institute, Seoul, Republic of Korea, conducted a phase I, single-center trial of intratracheal transplantation of human umbilical cord blood-derived [mesenchymal stem cells](#) to nine very preterm infants (24-26 weeks gestational age) who were at high risk of developing BPD.

All patients who received the treatment tolerated the procedure well without any immediate serious adverse effects. Thirty-three percent of treated infants developed moderate BPD and none developed severe BPD, and 72 percent of a matched comparison group developed moderate or severe BPD. Another serious side effect of very [preterm birth](#), retinopathy of prematurity requiring surgery, tended to occur less often in treated infants. Overall, all nine treated infants survived to discharge, and only three developed moderate BPD.

This phase I study suggests that intratracheal administration of mesenchymal stem cells is safe and feasible. According to Dr. Park, "These findings strongly suggest that phase II clinical trials are warranted to test the efficacy of mesenchymal stem cell transplantation, which could lead to new therapies to prevent or cure BPD." Dr. Park and colleagues are currently conducting a long-term safety and follow-up study of these nine [preterm infants](#) (ClinicalTrials.gov: NCT01632475).

More information: "Mesenchymal Stem Cells for Bronchopulmonary Dysplasia: Phase 1 Dose-Escalation Clinical Trial," by Yun Sil Chang, MD, PhD, So Yoon Ahn, MD, Hye Soo Yoo, MD, Se In Sung, MD, Soo Jin Choi, MD, PhD, Won Il Oh, MD, PhD, Woon Soon Park, MD, appears in *The Journal of Pediatrics*, [DOI: 10.1016/j.jpeds.2013.12.011](#)

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