Premature infants' lungs may improve with better nutrition: study

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(PhysOrg.com) -- Improving lung function in premature babies with a severe lung disease may be linked to their feeding regimen, according to a new University of Michigan study.

Researchers studied 18 infants with a history of moderate to severe bronchopulmonary dysplasia (BPD) and found that those with above-average weight gain between evaluations showed significantly improved lung volumes, revealing a possible association between lung growth and improved nutrition.

The results of this study appear in an upcoming edition of the journal *Pediatric Pulmonology.* The results are available online now.

BPD typically develops in premature infants who require prolonged ventilation or oxygen therapy after birth, leading to significant reductions in airflow and lung overinflation when compared to full-term infants. Infants with BPD also often develop asthma later in life.

Over a nearly one-year span, U-M researchers found little improvement in the study group's average airflows and lung volumes. However, the nine premature babies with above-average weight gain over time saw greater improvement, though they were unable to catch up to full-term babies.

"Consistent with animal studies that show the harmful effects of malnutrition on lung development, we showed improvements in lung function, such as forced vital capacity and total lung capacity, in infants with above-average body growth," says study lead author Amy G. Filbrun, M.D., M.S., assistant professor of pediatrics and communicable diseases.

Filbrun also is director of the U-M Apnea and Bronchopulmonary Dysplasia Program.

Previous studies have shown that lung function in babies with BPD improves over time as the lung continues to grow, but researchers say this is the first to record longitudinal measurements using the raised volume rapid thoracoabdominal compression (RVRTC) technique.

This method measures airway function throughout the full range of lung volumes, similar to tests on older children and adults.

"These results add new and more accurate information on lung function in infants with a history of bronchopulmonary dysplasia at a time period in development when previous data was lacking," says Filbrun.

Babies born before 37 weeks of pregnancy are considered preterm, or premature. Each year, 1 in 8 babies born in the United States are premature, reports the U.S. Centers for Disease Control and Prevention.

More premature infants are surviving because of advancements in care for these babies, but they remain at risk for developing BPD.

Growth failure and malnutrition are common among infants with BPD. Researchers say studies examining the effects of various feeding regimens on lung growth are warranted, with the idea that improved nutrition may improve airway function and long-term respiratory health in these children.

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