

Low birth weight linked to long-term respiratory problems

July 7 2009

Infants who weigh less than five and a half pounds at birth often enter the world with a host of medical complications, including respiratory problems. New research shows that these respiratory problems may persist well beyond their infancy and childhood and into adulthood.

"We report a previously unrecognized excess risk of hospitalization for respiratory illnesses in young adults with a history of low [birth weight](#)," wrote lead researcher Eric C. Walter, M.D., of the University of Washington Division of Pulmonary and Critical Care. "Our findings suggest that not only are [low birth weight] survivors at increased risk for long-term respiratory disorders, but that these disorders are clinically significant and associated with increased health care utilization."

The study appears in the July 15 issue of the [American Journal of Respiratory and Critical Care Medicine](#).

The researchers used hospitalization records from the Washington State Comprehensive Hospital Abstract Reporting System's discharge database between January 1, 1998 and December 31, 2007. They selected as potential cases any person who was 18 years old at the time of hospitalization and who was discharged with a respiratory code listed among the top four diagnoses. They then linked these cases to birth weight data listed on birth certificates where possible. Control subjects were randomly selected from birth certificate data.

They found that individuals with very low birth weight (less than 1.5 kg,

or 3.3 lbs.) or moderately low birth weight (1.5 to 2.5 kg or 3.3 to 5.5 pounds) had a 83 and 34 percent higher risk of hospitalization for respiratory diagnoses respectively. Those who had a history of very low birth weight had twice the risk of being hospitalized for asthma or respiratory infection and 2.6 times the risk of respiratory failure requiring mechanical ventilation.

After adjusting for covariates, including demographic characteristics and maternal smoking, the significant association between birth weight and risk of hospitalization persisted. Furthermore, while the data could not definitively prove a linear link, researchers did note a trend toward greater risk of respiratory problems with lower birth weights.

"In our study the percentage of respiratory disease attributable to moderately or very low birth weight was estimated to be 1.8 percent. If this were extrapolated to the 1.2 million U.S. hospitalizations for respiratory illnesses per year for ages 18 to 44, low birth weight may account for over 22,000 adult hospitalizations per year, with charges in excess of \$225 million per year," said Dr. Walter.

While the study did not distinguish between premature birth and retardation of in utero development as causes of low birth weight, previous research has found that both conditions increase risk of abnormal pulmonary function in adolescence and adulthood.

Dr. Walter notes that maternal smoking is a risk factor for low birth weight, and that children of mothers who smoked are more likely to smoke themselves. The relationship, therefore, is difficult to fully tease apart. "It is unknown if adults with a history of low birth weight are more likely to smoke than adults with a history of normal birth weight," he said. "[In this study] we did not find that maternal smoking confounded the affect of low birth weight on adult respiratory disease, but further research is needed comparing hospitalization and smoking

rates between adults with history of low birth weight and normal birth weight to better understand this relationship."

While more research is needed to further clarify the relationship between birth weight and subsequent respiratory problems, these results do strongly suggest a looming public health issue. Since the mid-1980s, the proportion of low- and very low birth weight births in the U.S. has increased by more than 20 percent, and in 2005, there were 330,000 combined low- and very low birth weight births in the U.S.

"Given the data from the present study, it would seem prudent to include such a bleak forecast in long-term planning for the provision of health care services," wrote Anne Greenough, M.D. of King's College, London in an accompanying editorial.

Source: American Thoracic Society ([news](#) : [web](#))

Citation: Low birth weight linked to long-term respiratory problems (2009, July 7) retrieved 24 April 2024 from <https://medicalxpress.com/news/2009-07-birth-weight-linked-long-term-respiratory.html>

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