

Respiratory Distress Syndrome (RDS)

Respiratory distress syndrome (RDS) is a life-threatening lung disorder that occurs in premature infants whose lungs have not fully developed. RDS is caused by a lack of pulmonary surfactant, a liquid that coats the inside of the lung. This liquid keeps the air sacs in mature lungs from collapsing and allows them to inflate with air more easily. In a few cases, RDS can be caused by genetic problems with lung development.

The incidence of RDS correlates with the amount of time a child stays in the womb.¹ Most cases are seen in babies born before 28 weeks and it is rare in infants born full-term (at 40 weeks). In 2005, 16,268 infants suffered from RDS, an incidence rate of 3.9 per 1,000.² The RDS incidence rate was 3.9 per 1,000 for Caucasians, 4.7 per 1,000 for African Americans, 1.8 per 1,000 for Hispanics, 5.3 per 1,000 for American Indians/Alaska Natives, and 2.4 per 1,000 for Asian Americans/Pacific Islanders.³

Symptoms usually appear shortly after birth and become more severe over time. The symptoms of RDS include bluish color of the skin and mucus membranes, brief stopping in breathing, grunting, nasal flaring, decreased urine output, swollen arms and legs, rapid and shallow breathing.⁴ Prematurity is the most important risk factor for developing RDS. Other risk factors include a sibling with RDS, diabetes in the mother, Cesarean delivery, delivery complications that lead to acidosis in the newborn at birth, multiple pregnancy, and rapid labor.⁵ RDS infants may develop several complications, including infection of the bloodstream (sepsis) and other problems related to premature birth, such as bleeding into the brain. These and other complications can cause convulsions (shock-like states), and in some cases even death.

Prompt treatment is necessary for infants suffering from RDS. Mechanical ventilation and surfactant therapy have become the standard of care in management of RDS.⁶ Another effective treatment is the use of nasal continuous positive airway pressure (nCPAP). nCPAP delivers highly pressurized air through the nose and helps to keep the airways open. It may even prevent the need for a breathing machine for many babies.⁷

In 1979, RDS was the second-ranking cause of death in infants but due to the progress made in prenatal care, it has dropped to the eighth place in 2007. In 2007, 735 deaths, or 17.0 per 100,000 live births were due to RDS.⁸

Racial/ Ethnic Differences

African Americans

In 2005, African American infants had a RDS incidence rate of 4.7 per 1,000 compared with 3.9 per 1,000 for Caucasian.

African Americans had the second highest incidence rate of all racial/ethnic groups after American Indians/Alaska Natives.⁹

In 2007, African American infants (35.3 per 100,000) were more than twice as likely to die from RDS compared to Caucasian infants (13.9 per 100,000) and the general U.S. population (17.0 per 100,000).¹⁰ It is possible that this difference is due to the higher rate of premature births among African American women. According to the 2007 birth data, 13.8 percent of African American women, as opposed to 7.2 percent of Caucasian women, delivered low-birthweight babies (under 2,500 grams).¹¹ In 2007, RDS was the eighth leading cause of deaths among African American infants under 1 year of age.¹²

Hispanics

In 2005, 1,779 Hispanic infants suffered from respiratory distress syndrome. The incidence rate among Hispanics was 1.8 per 1,000 and was lower than all other racial/ethnic groups and the national incidence rate (3.9 per 1,000).¹³

In 2007, 124 Hispanic infants died from RDS, an infant mortality rate of 11.7 per 100,000. Hispanic mortality rates for respiratory distress syndrome were lower than that of Whites (13.9 per 100,000) and the general population (17.0 per 100,000). RDS was ranked the tenth leading cause of death for Hispanic infants under 1 year of age.¹⁴

As with asthma, RDS mortality rates vary among Hispanic subgroups. In 2001 (latest year data reported), Puerto Rican infants were twice as likely to die from RDS (43.4 per 100,000) as Mexican (21.1 per 100,000), and Central and South American infants (17.3 per 100,000).¹⁵

Asian Americans/ Pacific Islanders

In 2005, 561 Asian Americans/Pacific Islanders were affected by respiratory distress syndrome. Asian Americans had the second lowest incidence rate, after Hispanics, compared with all other racial/ethnic groups in the United States (2.4 per 1,000 and 1.8 per 1,000, respectively).¹⁶

Reliable incidence and mortality figures for RDS are not available for Asian Americans/Pacific Islanders

American Indians/ Alaska Natives

In 2005, 236 American Indians/Alaska Natives were affected by respiratory distress syndrome. American Indians/Alaska Natives had the highest incidence rate of RDS (5.3 per 1,000) of all other racial/

ethnic groups in the United States. The national incidence rate of RDS (3.8 per 1,000) was much lower than for American Indians/Alaska Natives.¹⁷

Reliable incidence and mortality figures for RDS are not available for American Indians/Alaska Natives.

Resources

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- 4 Greene, A. Medline Plus Medical Encyclopedia. Neonatal Respiratory Distress Syndrome. September 5, 2007. Available at <http://www.nlm.nih.gov/medlineplus/ency/article/001563.htm>. Accessed July 28, 2009.
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- 16 National Center for Health Statistics. VitalStats. Available at <http://cdc.gov/nchs/VitalStats.htm>. Accessed January 7, 2008.
- 17 Ibid.