



## HYPOTHYROIDISM

# Neonatal hypothyroidism and low family income are associated with an increased risk of intellectual disability

### BACKGROUND

Congenital hypothyroidism is hypothyroidism that exists at birth either because the thyroid did not develop properly or because the thyroid has problems in one of the needed steps to make thyroid hormones. This occurs in ~1:1700 births. Neonatal hypothyroidism is hypothyroidism occurring in the 1st year of life, with congenital hypothyroidism being the main cause. Failure to treat congenital and neonatal hypothyroidism within the 1st 3 months of life can cause permanent brain damage, causing intellectual disability (a decrease in the ability to learn and practice daily skills). Indeed, congenital hypothyroidism is the major cause of preventable mental retardation worldwide. It is also the reason that all babies born in the United States are tested for congenital hypothyroidism at birth.

People living in low-income households frequently encounter many challenges, including getting adequate nutrition and accessing appropriate health care. Additionally, children in low-income households are more likely to have intellectual disability due to a variety of factors. The goal of this study is to evaluate the link between neonatal hypothyroidism, family income, and intellectual disability.

### THE FULL ARTICLE TITLE

Nam JY et al (2018) The effect of neonatal hypothyroidism and low family income on intellectual disability: a population-based cohort study. PLoS One 13(11):e0205955. PMID: 30403688.

### SUMMARY OF THE STUDY

This study reviewed data in a large national database (National Health-Insurance Service-National Sample Cohort). Information including presence of intellectual disability, newborn hypothyroidism, and family income (based on average monthly insurance premiums) was evaluated. Analyses were completed to determine whether intellectual disability was related to hypothyroidism and/or low income. Of the 91,247 infants, 208 were identified as having intellectual disability. The study included 129 infants with neonatal hypothyroidism and demonstrated that neonatal hypothyroidism increases the risk of intellectual disability. Additionally, the risk of intellectual disability was higher in infants of low-income households when compared to high-income families. The study concluded that neonatal hypothyroidism when combined with low family income greatly increases the risk of intellectual disability.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

It is clear that individuals living in low income households are at high risk of developing health problems. This study shows that living in a low income household in the first year of life combined with having neonatal hypothyroidism was associated with a substantially increased risk for the diagnosis of intellectual disability in childhood. It is important to identify these at-risk children with hypothyroidism to ensure that they receive adequate treatment.

— Priya Mahajan, MD

### ATA THYROID BROCHURE LINKS

Hypothyroidism (Underactive): <https://www.thyroid.org/hypothyroidism/>

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

Thyroid Hormone Treatment: <https://www.thyroid.org/thyroid-hormone-treatment/>





## HYPOTHYROIDISM, continued

### ABBREVIATIONS & DEFINITIONS

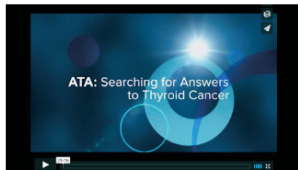
**Hypothyroidism:** a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

**Congenital hypothyroidism:** hypothyroidism that exists at birth either because the thyroid did not develop properly (thyroid dysgenesis) or because the thyroid

has problems in one of the needed steps to make thyroid hormones (thyroid dysmorphogenesis). Congenital hypothyroidism is estimated to occur in 1:1700 newborns.

**Intellectual disability:** a decrease in the ability to learn and practice daily skills.

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