
Healthcare of hypothyroidism during pregnancy and subsequent postnatal neurocognitive functions: A systematic literature review

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Abstract

Hypothyroidism is a metabolic disorder in which the T₄ hormone is insufficient. Thyroid hormones are essential for neurodevelopment through specific time windows influencing neurogenesis, neuronal migration, neuronal and glial cell differentiation, myelination, and synaptogenesis. T₄ deficiencies during pregnancy are critical events that could potentially interact with the development of the fetus. The 15.5 percentage of women in the U.S. have hypothyroidism during their pregnancy. In their newborns, the central nervous system function may be impaired, contributing to a low intelligence quotient and intellectual disability. Despite this, there is a lack of literature on the impact of hypothyroidism in neurocognitive processes. Thus, our aim is to perform a systematic review of literature (SLR) of hypothyroidism in pregnancy and the subsequent neurocognitive functions on their children. This SLR will be conducted throughout four phases. In phases one through three a search of multiple databases will be conducted to locate articles published in peer-reviewed journals from 2005 to present. Articles included met the following criteria: 1) hypothyroidism diagnosis during pregnancy 2) neurocognitive functions. In phase four, judges independently extracted data from studies to then examine methodological quality of each article. Descriptive analysis was conducted for preliminary results. 40 articles met the inclusion criteria, from these an 80% reported that hypothyroidism affects the cognition on children born from mothers with hypothyroidism during pregnancy. This systematic review addresses the lack of literature on this topic by providing preliminary data for the association of hypothyroidism diagnosis during pregnancy and subsequent neurocognitive deficiencies.