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Retrospective study on maternal BMI and length of stay for neonates with hypoxic ischemic encephalopathy treated with hypothermia

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Background

Neonatal hypoxic ischemic encephalopathy (HIE) causes significant morbidity and mortality. Therapeutic hypothermia (TH) is an important treatment in HIE. There is a need to better understand the antepartum factors associated with HIE. Maternal obesity has been previously identified as a risk factor for HIE. There is likely a positive correlation between the severity of HIE, abnormal MRI results, and the length of a neonate's NICU stay before discharge.

Purpose

This retrospective study compares the maternal BMI at delivery to the MRI results of the newborn at 4-7 days after birth and to the NICU length of stay with HIE and TH. We aim to discern whether a relationship exists between these metrics.

Methods

47 infants born between 4/2014 and 7/2021 were managed with TH at Creighton University Medical Center – Bergan Mercy Hospital for HIE. 43 had data on maternal BMI at time of delivery, MRI results, and length of stay in NICU.

Results

We found a positive correlation between maternal BMI and NICU length of stay. Additionally, we observed a higher incidence of abnormal MRIs in neonates born to mothers with higher BMIs.

Implications for clinical practice

Increased NICU length of stay and abnormal MRI results may be due to more severe HIE in infants born to mothers with larger BMIs. Further studies will evaluate other factors associated with severe HIE and maternal BMI.