

Obstetric and Neonatal Complications at Birth Increased Risk of Developing Neurodevelopmental Disorders: A Sibling-controlled Birth-cohort Study

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Background

- Associations between obstetric complications (OCs) and neurodevelopmental disorders (NDDs) were repeatedly reported
- Heritability of NDDs is moderate-to-high from genetic findings, complicating the evaluation of prenatal risk factors

Objective

- Clarify the associations of various OCs with multiple NDDs with adjustment of unmeasured familial confounder

Method

- Birth-cohort comprised 236,827 children born from 1-January-2004 to 31-December-2015 in Hong Kong, who were followed until 18-year-old or 31-December-2022.
- Conventional and time-varying cox model were performed.
- Sibling-matched were conducted based on unique identifiers of each mother who gave birth

Results: Sibling-control models

Obstetrics complications	Most robust NDD association	aHR (95% CI)
Small-for-gestation-age	ADHD	1.40 (1.16-1.69)
Small-for-gestation-age	Developmental delays	2.86 (1.96-4.16)
Small-for-gestation-age	Intellectual disability	7.64 (3.62-16.1)
Intra-uterine growth retardation	Developmental delays	2.18 (1.38-3.43)
Gestational hypertension	Autism	1.66 (1.23-2.23)

Discussion

- This study extended previous literature which rarely accounted for unmeasured familial factors
- Prenatal history of small-for-gestation-age, intra-uterine growth retardation, and gestational hypertension may indicate early neurodevelopmental vulnerability.
- Obstetric complications appear transdiagnostic rather than disorder-specific