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17TH ANNUAL CHILD HEALTH RESEARCH DAYS

Nutrition for a Changing World

The Science of Nourishing the Next Generation

CHRD 2021: Abstract & Poster Submission Form

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Research Category:

- Basic Science
- Clinical
- Community Health / Policy

What was your role in the project?

- Design
- Perform Experiments
- Analyze Data
- Write Abstract

Presenter Status:

- Undergraduate Students
- Masters Student
- PhD Student
- Post-Doctoral Fellows
- Residents
- Non-Trainee

Title

Using fetal ultrasound to predict postnatal developmental outcomes in children born with cardiac defects in Manitoba: a historical cohort study.

Background

There is some evidence in the fetal ultrasound literature suggesting a relationship between size of the CSP and risk of certain genetic conditions associated with risk of conotruncal cardiac disease, namely DiGeorge syndrome. However, there exists no information about the relationship between fetal CSP width and future neurodevelopmental outcomes in children with cardiac defects.

Objective

To determine the relationship between cavum septum pellucidum (CSP) width and neurodevelopment in children born with severe cardiac defects.

Methods

This was a historical cohort study of children born with cardiac anomalies in Manitoba (2009-2019). Eligible children with developmental pediatric follow-up between ages 18-24 months corrected age were identified using a clinical repository. Post-processing measurement of the fetal CSP at mid-gestation using stored obstetrical ultrasounds was performed by two blinded and independent reviewers in a standardized fashion. Ultrasound reports were also reviewed to collate data about routine fetal biometry, and imaging data then linked to demographics, birth information, surgical details, and neurodevelopmental outcomes (Bayley-III scales). Linear regression models were used to evaluate the relationship between CSP width and Bayley-III scores; inferential statistics were used to compare outcomes between groups (biventricular versus single-ventricle repair).

Results

78 of 111 eligible cases had stored ultrasound images and included in the analysis. Most children were delivered at term following vaginal delivery (71 %), with normal birthweight and Apgars. Median CSP width was 3.8mm (SD 1 .2). There was a range of conotruncal cardiac anomalies and 47% required single-ventricle repair.

There was no obvious relationship between CSP width and Bayley-III motor ($p=0.932$) or cognitive domains ($p=0.686$), however there was a trend towards larger CSP and higher Bayley-III language scores ($p=0.049$).

Conclusion

The influence of the deoxygenated blood on the developing fetal brain in modifying outcomes for children with severe cardiac defects needs future study to improve postnatal neurodevelopment in this high-risk group.

Authors

- For each author, please click "[+] Add Item" and provide the author's information

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