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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

Submitter Name

M. Florencia

First

Ricci (1)

Last

Email

mflorenciaricci@gmail.com

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

Long-term survival and neurodevelopmental outcomes of very-preterm infants born in Canada between 2009 and 2016.

Background

Quality improvement programs adopted across Canadian Neonatal Network (CNN) sites have resulted in increased neonatal survival without major morbidity among infants born extremely preterm.

Objective

This study aimed to evaluate changes in mortality or significant neurodevelopmental impairment (sNDI) rates in children born < 29 weeks' gestation in association with national quality improvement initiatives.

Methods

This longitudinal cohort study included children born at <29 weeks' gestation who were admitted to CNN sites between 2009 and 2016. Surviving children were assessed for neurodevelopmental outcomes at 18-24 months corrected age (CA). Primary outcome was composite rate of death or sNDI (Bayley-III scores < 70, severe cerebral palsy, blindness or deafness needing amplification) at 18-24 months CA. Secondary outcomes were: composite rate of death or any NDI (Bayley-III < 85, any cerebral palsy, visual or hearing impairment) and components of NDI. To evaluate temporal changes, outcomes were compared between epoch 1:2009-2012, and epoch 2: 2013-2016. Adjusted odds ratios (AOR) were calculated for differences between the 2 epochs accounting for patient characteristic differences.

Results

Of the 4426 included children; 1895 (43%) were born in epoch 1 and 2531(57%) in epoch 2. In epoch 2 more mothers received magnesium sulphate (56% vs. 28%), antibiotics (69 vs.65%) and delayed cord clamping (37% vs. 31%), and fewer infants had SNAP-2 score >20 (31% vs. 35%) or late onset sepsis (23% vs. 27%).

Conclusion

Among extremely preterm infants, composite rates of death or sNDI and rates of visual and hearing impairment decreased significantly in association with national quality improvement initiative. The identified increase in Bayley-III scores <85 may represent a previously described shift to milder forms of impairment among extremely preterm infants.

Table: Survival and neurodevelopmental outcomes by Epoch + Adjusted odds ratio from Epoch 2 to Epoch 1

Outcome (s)	Epoch 1 n (%)	Epoch 2 n (%)	Adjusted OR * (95%CI)
Primary			
Death or significant NDI	602 (31.8)	756 (29.9)	0.86 (0.75, 0.99)
Secondary			
Death or NDI	1051 (55.5)	1345 (53.1)	0.89 (0.79, 1.01)
Death at any time before follow-up	322 (17.0)	420 (16.6)	0.88 (0.74, 1.04)
Significant NDI	280 (17.8)	336 (15.9)	0.87 (0.73, 1.04)
NDI	729 (46.3)	925 (43.8)	0.90 (0.79, 1.03)
Cerebral palsy	94 (6.1)	114 (5.5)	0.88 (0.66, 1.17)
Bayley Motor composite score <70	100 (6.9)	111 (6.0)	0.86 (0.65, 1.14)
Bayley Cognitive composite score <70	45 (3.0)	79 (4.1)	1.36 (0.93, 1.99)
Bayley Language composite score <70	169 (11.6)	217 (11.8)	1.02 (0.82, 1.27)
Bayley Motor composite score <85	313 (21.6)	379 (20.6)	0.94 (0.79, 1.12)
Bayley Cognitive composite score <85	195 (13.2)	311 (16.0)	1.25 (1.03, 1.53)
Bayley Language composite score <85	528 (36.2)	664 (36.1)	1.00 (0.86, 1.15)
Hearing loss			
- Hearing aid or cochlear implant	39 (2.6)	28 (1.4)	0.50 (0.31, 0.82)
- Sensorineural/mixed hearing loss	105 (7.1)	103 (5.0)	0.70 (0.53, 0.92)
Visual impairment			
- Bilateral visual impairment	19 (1.4)	11 (0.6)	0.38 (0.18, 0.80)
- Uni or bilateral visual impairment	22 (1.6)	14 (0.7)	0.42 (0.22, 0.83)

* gestational age, sex, small for gestational age, multiple pregnancy (non-practice related variables)

Authors

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

Name	Email	Role	Profession
M. Florencia Ricci	mflorenciaricci@gmail.com	Presenting Author	Assitant Professor
Prakesh S Shah		Co Author	Full Professor
Diane Moddemann		Co Author	Associate Professor
Ruben Alvaro		Co Author	Associate Professor
Eugene Ng		Co Author	Full Professor
Shoo K. Lee		Co Author	Full Professor
Anne Synnes		Co Author	Full Professor