

Congenital Cytomegalovirus Infection – are we choosing wisely?



RESEARCH WEEK
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Northern Health

Background, Aims & Objectives

Background: Cytomegalovirus (CMV) is the leading infectious cause of hearing loss, cognitive deficit and vision impairment. It has a worldwide birth prevalence of 0.64% while Australia reported a birth prevalence of 0.006% (6.02 per 100 000 live births) signalling a gross under-surveillance.

The absence of clinical guidelines for screening worldwide means detection is highly dependent on clinical suspicion, with the added challenge that 85-90% of neonates will be asymptomatic.

Aims & Objectives: To determine the birth prevalence of congenital CMV (cCMV) infection at the Northern Hospital and to characterise the testing pattern for cCMV infection.

Methods

Design: A retrospective search of medical records of identified neonates was conducted. Birth measurements, maternal CMV serology, investigations (CMV test, hearing test, liver function test and neuroimaging), indications for urine CMV PCR testing and timing of the tests were analysed.

Participants: Neonates admitted to The Northern Hospital's Special Care Nursery with urine samples sent for CMV PCR testing between 1st January 2015 to 31st December 2019.

Statistical Analysis: Data analysis was performed using SPSS Statistics Version 26.0. Categorical data was summarised with descriptive statistics, and continuous variables analysed with student's t-test ($p < 0.000$).

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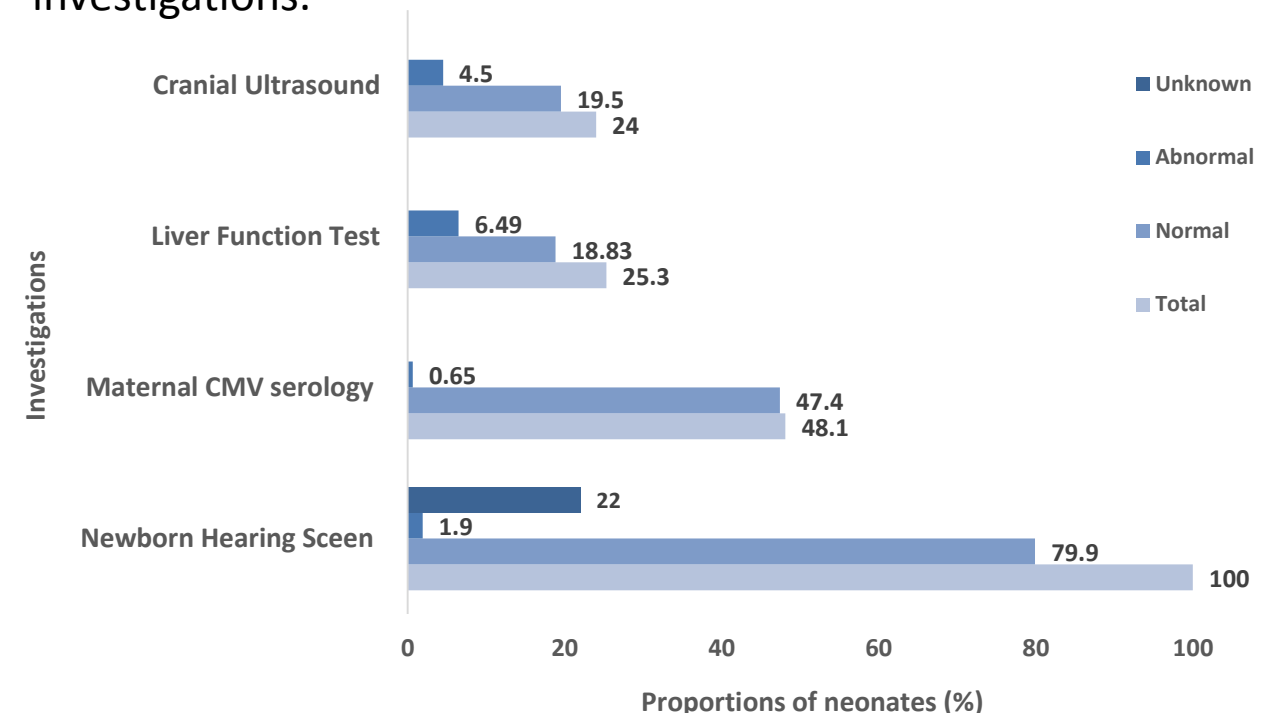
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Results

A total of 17 657 babies were born at the Northern Hospital over 5 years (stillbirths excluded). 154 neonates had urine CMV PCR testing conducted.

CMV result	n (%)		
Positive	1 (0.6)		
Negative	139 (90.2)		
Unknown	14 (9.1)		
		Median (IQR)	Range
Age at Sample Collection		4 (2-6)	1-62
≤ 21 days	151 (98.1)		
≥ 21 days	3 (1.99)		
Age at Results Received		11 (8-17)	4-53
Documented	74 (52.9)		
Not documented	80 (47.1)		

Approximately 25% of suspected cCMV infected neonates had neuroimaging and/or liver function tests ordered.
4.4% of CMV tests were prompted by the results of such investigations.



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Results and Conclusion

Key Findings

- 1 positive case of congenital CMV infection.
- 0.0057% (5.62 per 100 000 live births) is the birth prevalence of cCMV infection at the Northern Hospital, in keeping with the reported Australian data.
- Physical findings were more likely to result in further investigation for cCMV infection.

Conclusion

Development of standardized guidelines for CMV testing is required for better identification of cCMV infected neonates.

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150/154 (97%) of neonates had a single indication documented for CMV testing. Intrauterine growth restriction was the top indication for testing

