

Hospital-based Efforts to Implement Hearing Targeted CMV (HT-CMV) Testing for Infants Who Refer on Inpatient Infant Hearing Screening

Karen Baker¹, Barbara Moyer², Kathy Aveni³, Linda Biando³

1) Penn Medicine at Princeton Medical Center, 2) Atlanticare Regional Medical Center, 3) New Jersey Department of Health

Congenital cytomegalovirus (cCMV) infection has been recognized as a major cause of congenital hearing loss. It is estimated that 10% to 20% of congenital sensorineural hearing loss is caused by cCMV. While several states currently have legislation regarding screening and/or perinatal education about CMV screening, New Jersey currently has no such legislation. This poster describes the steps implemented at those hospitals to begin CMV screening in the absence of a state mandate.

WHAT IS KNOWN ON THIS TOPIC

- Congenital cytomegalovirus (cCMV) is the most common non-genetic cause of sensorineural hearing loss (SNHL).
- Antiviral therapy provided to infants with cCMV during the first month of life yields improved audiologic outcomes.

Williams EJ, Kadambari S, Berrington JE, Luck S, Atkinson C, Walter S, Embleton ND, James P, Griffiths P, Davis A, Sharland M, Clark JE. Feasibility and acceptability of targeted screening for congenital CMV-related hearing loss. Arch Dis Child Fetal Neonatal Ed. 2014 May;99(3):F230-6.

CMV Testing Methods / Procedural Comments

Urine Culture

- Gold Standard
- May be difficult to obtain
- Poor for universal detection
- Long turn-around time

Urine PCR

- Short turn-around time
- May be difficult to obtain

Saliva PCR (both liquid and dried)

- Good sensitivity (99.9%)
- Good specificity (97%)
- Easy to obtain
- May require urine culture for confirmation of positive result

After consideration of methods CHOP Newborn Care Network Hospitals decided to use Urine PCR due to availability, rapid results and sensitivity.

Getting Started

The neonatal services at AtlantiCare and Penn Medicine at Princeton Medical Center are affiliated with the Children's Hospital of Philadelphia (CHOP) through the CHOP Newborn Care Network.

In conjunction with the CHOP Department of Otolaryngology, recommendations were made to begin screening for CMV in infants who refer on their inpatient newborn hearing screen although it is not mandated by the State of New Jersey.

The New Jersey EHDI Program has coordinated a statewide CMV/Hearing Loss webinar.

Proposed Process

Hearing test performed by Tech/RN

Results given to parents

MD discusses with parents any refer results and refers patient to Audiology as per current protocol

Parents are given CMV Frequently Asked Questions (FAQ) sheet

Urine CMV PCR obtained on infants who refer on second test prior to discharge

Patient Follow-up Log sheet completed by Hearing Screen Coordinator

Negative CMV results are called to parents by Hearing Screen Coordinator

Positive CMV results are called to parents by Attending Neonatologist, and infant is referred to Audiology, Otolaryngology, and Infectious Disease with a visit scheduled within 4 weeks

Implementation

As the CHOP Newborn Care Network Hospitals start to implement this testing steps include:

Training staff - RN's, Techs, Pediatricians

Creating a policy and procedure and process timeline that best balances the many challenges

Creating a parent handout of FAQ

Creating a tracking system/log for all referred hearing screens and CMV testing follow-up

Challenges

To find a lab to process the type of specimen

Using non-contract lab for testing also requires ensuring appropriate transportation of the specimen to the lab

Obtaining timely lab results to begin Antiviral Therapy

Cost varies widely by lab, impacting choice

Timing of hearing screening (and second screen) influences specimen collection time

Not delaying discharge due to specimen collection

Results

Due to challenges encountered, implementation is still in progress

Anticipated start date:
April 2018

Conclusion: Given the current evidence available, hospitals should consider implementing CMV screening for infants who fail their newborn hearing screening. The diagnosis of cCMV infected children from CMV screening and the role of antiviral therapy for these children can improve their hearing or speech and language outcomes. While the concept of implementing cCMV screening is straightforward, navigating the challenges inherent in this procedural process require a strong commitment from program staff.