

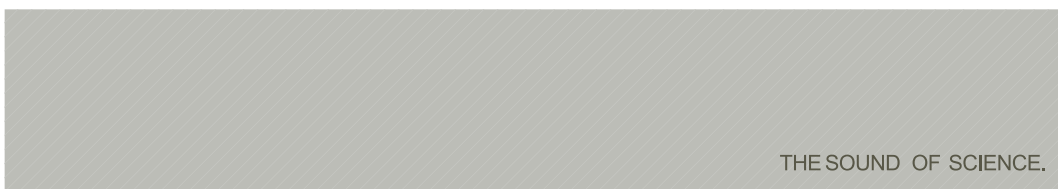
Welcome to the new PATH MEDICAL NEWSLETTER. This publication is intended to highlight features of our products, tips on best practices, and how to use PATH MEDICAL devices. We hope that you find the information valuable and would love to have your feedback and suggestions for topics. Please write to us at academy@pathme.de.

Cytomegalovirus (CMV)

Cytomegalovirus (CMV) is a very common virus and is a member of the herpesvirus family. CMV can infect people of all ages. Being a herpesvirus, it can lie dormant or can re-occur. Most healthy individuals who contract it may not know that they are infected as there are often no noticeable symptoms or mild flu-like symptoms. For individuals who are immunocompromised there can be severe sequelae as well as those who contract it during pregnancy there can be severe sequelae for the fetus. When an infant is infected with CMV in utero, it is termed Congenital CMV. Most babies (~90%) who have congenital CMV do not show symptoms at birth. Symptoms at birth can include jaundice, thrombocytopenia (low level of platelets in the blood), petechiae or purpuric rash, microcephaly, intrauterine growth retardation (being born small for the gestational age), hepatosplenomegaly (enlarged liver and spleen), chorioretinitis (damage to the retina), and hearing loss. It is estimated that the approximate 10% of babies born with congenital CMV who have symptoms at birth, 75% will have a hearing loss (CDC).

CMV is not very contagious, and the spread of the virus requires close or intimate contact with infected secretions. However, congenital CMV is the leading cause of non-genetic hearing loss in newborns and is thought to account for 20-25 % of all hearing losses in newborns. The virus is found globally but with different prevalence of antibodies found in individuals worldwide. In a study that evaluated seroprevalence or the presence of the antibodies of CMV IgG antibodies, they found that seroprevalence was highest in more developed countries and lowest in developing countries (Zuhair et al., 2019). This implies that women in developing countries are at greater risk for contracting CMV during pregnancy.

Hearing loss may be present at birth, may change over time, or may develop later. That is, the hearing loss may have a gradual or sudden onset and be in one ear (unilateral) or both ears (bilateral). There can be the same amount of hearing loss in both ears (symmetrical) or different amounts of hearing loss in each ear (asymmetrical). The amount of hearing loss across the frequency range can be of any configuration with more hearing loss in the lower frequencies



compared to the higher frequencies (upward-sloping configuration), or the opposite with more hearing loss in the higher frequencies compared to the lower frequencies (downward sloping configuration), the same across the frequency range (flat configuration) or an upward sloping and downward sloping hearing loss (Dahle et al., 2000).

Some states have mandates, and some hospitals have initiated CMV testing for any infant who does not pass the newborn hearing screening. The reason is that if testing is not completed within 2-3 weeks of birth, it is difficult to determine if the virus was congenital or acquired. To detect the virus, testing is done using Polymerase Chain Reaction (PCR) on either a urine (preferred method) or saliva sample from the infant.

Although there has been progress in the development of a vaccine for CMV, there currently is still no vaccine. If a baby is found to have congenital CMV, the treatment entails administering antiviral medications such as Valganciclovir to the infant. These medications may improve developmental as well as hearing outcomes, although these antiviral medications can have side effects. Currently, there is limited data on treatment for infants who have only hearing loss and no other symptoms.

To reduce the risk of transmission for pregnant women, precautions should be taken to avoid making contact with young children's saliva and urine, especially if the young child is in daycare or preschool. That is, not sharing food, or kissing on the lips with a young child would be prudent, and above all, good hand hygiene is necessary to reduce the risk of infection.

CMV is not the only virus that can affect hearing during pregnancy if the virus crosses the placenta and the fetus becomes infected. Other TORCH infections or infections that can affect the fetus or newborn include **T**oxoplasmosis, **O**ther i.e. HIV, hepatitis viruses, varicella, parvovirus, **R**ubella, (**CMV**), and **H**erpes simplex. In summary, CMV is the most prevalent virus and is an important cause of hearing loss, especially in newborns with a congenital infection. While there's no cure for CMV-related hearing loss, early hearing screening, diagnosis and intervention can significantly help in managing the condition and improving quality of life.

References

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