Perinatal HIV Exposure Linked With Hearing Loss

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Children exposed to HIV in the womb are more susceptible to hearing loss by age 16 than unexposed children, according to results of a new study.¹ The study findings also showed that most cases of hearing loss were sensorineural (occurs because of damaged nerve cells or lack of development of the nerve cells for hearing), suggesting that nerve damage may occur perinatally. Because children with HIV infection are susceptible to middle ear infections, previous research of HIV-exposed and HIV-positive children has focused on conductive hearing loss (related to damage to the bones and structures in the ear canal and inner ear caused by chronic otitis media), which can result from chronic middle ear infections.

Almost all of the limited research on hearing loss in HIV-positive children focuses on conductive hearing loss. According to the study authors, this is the first study that has found an association between sensorineural hearing loss and HIV infection or exposure in children.¹ Because sensorineural hearing loss can distort sounds, young children with this type of hearing loss have poor acquisition of language skills.²⁻⁴ Audiometric examination was performed on 231 children, 145 of whom had HIV infection and 86 had HIV exposure without infection. Of the 145 children with HIV infection, 29 (20%) had hearing loss, compared with 9 (10.5%) of 86 children with HIV exposure. Of the 38 children with hearing loss, 14 (37%) had conductive hearing loss—with 11 (79%) of the 14 being HIV-positive—and 24 (63%) had sensorineural loss, of whom 18 (75%) were HIV-positive.

Although an association between perinatal HIV exposure and sensorineural hearing loss was identified, the causes are unknown. One possible explanation is that perinatal exposure to antiretroviral therapy (ART) may cause hyperbilirubinemia in neonates of mothers taking ART. Subsequently, elevated indirect bilirubin levels may cause encephalopathy in neonates, and milder forms of encephalopathy can result in sensorineural hearing loss.⁵ Other explanations may be exposure to cytomegalovirus and mitochondrial mutation, according to the study authors.¹ Pertinent Points:
- Compared with national averages for children of comparable age, children who were perinatally HIV-positive were 200% to 300% more likely to have hearing loss, and uninfected children with perinatal HIV exposure were 20% more likely to have hearing loss.
- HIV-positive women who are pregnant should be counseled about the increased risk of their children developing hearing loss and the importance of early hearing tests to identify early hearing loss to minimize potential delays in language and social development.


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