HIV-Positive and -Exposed Children More Likely to Have Hearing Loss

June 22, 2012

Children exposed to HIV in the womb may be more likely to experience hearing loss by age 16 than their unexposed peers, according to new research published online ahead of print by The Pediatric Infectious Disease Journal and summarized in a National Institutes of Health (NIH) news announcement.

Compared with age-matched HIV-negative children, the study found, those exposed to the virus and ultimately infected with HIV were more than twice as likely to experience hearing loss.

“Children exposed to HIV before birth are at higher risk for hearing difficulty, and it’s important for them—and the health providers who care for them—to be aware of this,” said George K. Siberry, MD, of the Pediatric, Adolescent and Maternal AIDS Branch of the NIH’s Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD).

Hearing loss is not uncommon among adults living with HIV—notably the sensorineural loss of hearing typically associated with aging. Whether it is more common among people living with HIV hasn’t been documented. For example, a study recently reported by Peter Torre, PhD, of the University of California at San Diego, found that age, gender and race, but not HIV, were the only significant factors associated with hearing loss in adults living with the virus.

But what about children, who may be more prone to immune deficiency-related ear infections or HIV-related nerve damage that can potentially affect hearing? To explore these possibilities, Torre and his colleagues with the NIH-funded Pediatric HIV/AIDS Cohort Study examined the prevalence of hearing loss in HIV-positive and HIV-exposed but uninfected children. The researchers compared this with the percentage of hearing loss in the general population and also evaluated possible hearing loss risk factors.

Participants included 231 children exposed to HIV during pregnancy; 145 were living with HIV, and 86 were exposed but not infected. Torre’s group conducted hearing tests on the children if their parents or caregivers had reported hearing problems, they had low scores on a standard test of language or their health care providers detected hearing problems during standard hearing screenings.

The researchers defined hearing loss as the level at which sounds could be detected, when

averaged over four frequencies important for speech understanding (500, 1,000, 2,000 and 4,000 Hertz), that was 20 decibels or higher than the normal hearing level for adolescents or young adults in either ear.

Study participants ranged from 7 to 16 years old.

Hearing loss was documented in 9 to 15 percent of the children living with HIV and 5 to 8 percent of children who were exposed to the virus but remained uninfected. It was most common among children living with HIV with a history of an AIDS diagnosis, even if they currently had relatively normal CD4 cell counts and undetectable viral loads.

Compared with national averages for other children their age, children with HIV were about 200 to 300 percent more likely to have hearing loss. HIV-exposed but uninfected children were 20 percent more likely to have hearing loss.

It is important to note, however, that the study did not actually enroll and conduct hearing tests on an HIV-negative control group, but instead made comparisons using data collected as part of the National Health and Nutrition Examination Survey (NHANES). In turn, precise comparisons between the HIV-exposed children in the study and those born to women not infected with HIV were not possible.

Earlier studies have found that children with HIV are susceptible to middle ear infections. Repeated middle ear infections can cause hearing loss. However, in 60 percent of cases in the study, hearing loss was the result of problems with the transmission of sound from the nerves of the ear to the brain—sensorineural hearing loss—rather than the result of damage in the middle ear resulting from ear infections.

“Although ear infections are more common among children with HIV, these do not appear to be the reason their hearing is more likely to be compromised,” Torre said in the NIH news announcement.

Even a mild hearing loss in children can delay the acquisition of language skills. More severe hearing loss may require the use of assistive devices, such as a hearing aid.

“If parents and teachers know the child has a hearing problem, then they may take measures to compensate in various communication settings, such as placement in the front of the classroom or avoiding noisy settings,” explained Howard Hoffman, MA, director of the Epidemiology and Statistics Program at the National Institute on Deafness and Other Communication Disorders.

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