

## SIDS and Hearing Loss ~ Medical Reviews by Dr. Thomas G. Keens and Dr. Henry Krous

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To My Esteemed Colleagues in the California SIDS Community:

The investigators hypothesized that the inner ear has important influences on the neurologic control of breathing. Thus, inner ear damage, which occurs prenatally or perinatally, may predispose some infants to die from SIDS based on its effect on control of breathing. The authors also point out that newborn hearing screening is common in the U.S., and that 90% of U.S. born babies are screened (I am not sure that statement is true). Thus, if abnormalities on hearing screening tests are found to be predictive of death from SIDS, this would be an inexpensive and easy way to perform noninvasive testing to identify high risk infants. The study started with 66 SIDS victims in Rhode Island, but only 31 had hearing tests prior to death of acceptable quality. The 31 babies who died from SIDS, and who had hearing screening tests prior to death, were matched to 31 control infants (matched for gender, age, prematurity, NICU status). The results showed that SIDS victims had decreased hearing at 2000, 3000, and 4000 Hz (frequency or pitch) on the right side compared to the left side. For controls, the opposite was true. The finding is interesting, but it seems to me that the authors have some trouble tying this result to respiratory control. They do suggest, at the end of the paper, that they will embark on some animal research studies to establish a link between hearing loss and ventilatory control.

My assessment is that the study is interesting, and research to support or refute it should continue. The authors' proposed animal research studies to link hearing loss and autonomic nervous system dysfunction should be encouraged. However, the numbers of infants in the study are small. In the paper we are not given any insight into individual subject variation and how much overlap there is in data between SIDS and controls. That is, are all SIDS victims distinctly different from all controls, or is there some overlap in the data? It is too premature to even think about using hearing tests as a screen for high risk for SIDS.

---Tom Keens

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I was given a very brief opportunity to address this study on CBS Evening News.

I would add that the study is:

1. Retrospective, therefore not predictive of risk; a large (and feasible) prospective study is needed to confirm risk;
2. Cochlear function was used as a surrogate for vestibular function (may not be valid),
3. It was unclear how well and completely the SIDS cases were evaluated,
4. Which SIDS definition that was used was not stated,
5. The study was provocative and preliminary,
6. And that whatever the results of hearing screens, parents should follow the Back to Sleep campaign recommendations.

Henry

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