

Use of a Fan During Sleep and the Risk of SIDS ~ Commentary Reviews
by
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This commentary review written by Dr. Thomas G. Keens, Dr. Henry F. Krous and Dr. Ronald L. Ariagno is in response to a research article, recently highlighted in the news, which examined the relation between room ventilation during sleep and risk of SIDS. The reference for this research study is: Kimberly Coleman-Phox, MPH; Roxana Odouli, MSPH; De-Kun Li, MD, PhD, *Use of a Fan During Sleep and the Risk of Sudden Infant Death Syndrome*, Archives of Pediatric and Adolescent Medicine; Vol. 162, No. 10 October 2008, pages 963-968.



In October, 2008, Doctor De-Kun Li's epidemiological research group at Kaiser in Northern California published a study showing that the use of a fan in the room where a baby sleeps reduces the risk of dying from SIDS [1]. The study is a case-controlled study with 2 control infants for every SIDS baby. There were 185 SIDS babies enrolled, representing 47% of the SIDS babies. There were 312 controls. Of the SIDS victims, only 6 had a fan in their room (3.6%), compared to 36 controls (11.7%). Additionally, 26 SIDS victims had an open window where they slept (16.0%), compared to 77 controls (24.9%). Using adjusted odds ratios (AOR), the investigators found that having a fan in the room was associated with an odds ratio of 0.28 (meaning that babies with a fan in their room were only 28% as likely to die from SIDS as those without). Having an open window in the room was associated with an odds ratio of 0.64. The effect of a fan was greatest in infant sleeping environments thought to carry higher risk. That is, having a fan in the room reduced the risk of SIDS even more in: Prone sleeping position (AOR 0.14); Warm room (AOR 0.06); Bedsharing with parents (AOR 0.40); Bedsharing with someone other than parents (AOR 0.15); Sleeping alone (AOR 0.23); and Did not use a pacifier (AOR 0.22). The investigators hypothesize that rebreathed air can accumulate and cause SIDS. A fan in the room, or an open window in the room, increases ventilation around the baby, and would tend to dissipate carbon dioxide [CO₂]. The investigators found that use of a fan seemed to be more protective in sleeping environments currently viewed as riskier, suggesting that the mechanisms of some of these deaths may be poorly circulated air. The study appears to be well conducted, and is based on a hypothesis which is reasonable. This study does support continued education about the traditional *Back to Sleep* recommendations, as use of a fan was not as protective in infants already sleeping in safe conditions.

Professor Henry F. Krous, Rady Children's Hospital of San Diego and the University of California, San Diego, adds these comments: "The findings of this study have a certain intuitive validity, but that said, the 72% reduction in SIDS cases is spectacular, if true, to say the least. It is imperative to clarify questions such as: Was the fan on? How close was it to the baby? How big was it? How fast was it running? (How much air did it move around the baby?) Was the remainder of the sleep environment safe or unsafe? And if the latter, why was it unsafe? Were the SIDS diagnoses verified in the eleven counties that were evaluated? As with other provocative studies, this issue

warrants further research before these practices can be accepted or promulgated in the public.”

Professor Ronald L. Ariagno, from Stanford University adds the following insightful observations: "It is important to remember that epidemiologic studies are primarily useful to develop hypotheses, which can be answered by future clinical trials. In brief, the future hypothesis to be tested here is that poorly ventilated houses/rooms are not safe sleeping environments for infants, and they may increase the risk of SIDS. Another study might use existing engineering and environmental standards to measure reality in the field quantitatively to determine if a fan could correct this problem. It is helpful that the Li study does support our concept of a low risk sleeping environment. It raises an important public health issue for our less privileged families with limited resources. Can we define a minimal acceptable sleep environment and provide what is needed? If it is ignorance/knowledge, we can take action there. If it is limited resources in home/family, it will be more challenging. Our advantage with *Back to Sleep* is that it was inexpensive to do, but difficult to change behavior as prone sleeping was a long standing tradition for professionals and families."

Based on these results, having babies sleep with a fan and/or open window may be a good idea. There is likely to be little harm from sleeping with a fan, and this study suggests that there may be benefit. There are, however, significant methodological questions, and it is too premature to make this a public health recommendation at present. It will be interesting to see if other studies verify these results.

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