



Studies of Childhood Leukemia in Sierra Vista, Arizona

Summary of Findings

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Background

From 1995 to 2003, 11 children in Sierra Vista, Arizona, were diagnosed with leukemia. Because this number of cases was higher than expected, the Arizona Department of Health Services and the Cochise County Health Department asked the Centers for Disease Control and Prevention (CDC) to help them try to learn why these children got sick. CDC's National Center for Environmental Health tested blood and urine samples from some people in Sierra Vista to measure levels of chemicals in their bodies.

Results

Chemicals

The results of the study showed that levels of chemicals found in most study participants were lower than levels in the U.S. population. The levels of chemicals were not different between case and comparison families.

Genetics

After studying many genes, CDC scientists found a variation in a gene called SUOX. This gene tells the body how to make sulfite oxidase, and the job of sulfite oxidase is to change an unsafe chemical into a safer one. It is not known what effect, if any, the variation has on sulfite oxidase. All of the children with leukemia had this variation in the SUOX gene, and almost half of the children who did not have leukemia had that same variation. This means that even if the variation in the SUOX gene adds to the risk for leukemia, there must also be other factors involved. So far, we do not know what those might be.

Conclusions

Some people in the study had higher levels of some chemicals in their bodies than levels found in the U.S. population. However, because higher levels were found in only a few study participants, it most likely indicates differences in individual exposures. The number of children with leukemia who participated in the study was very small, so it is not accurate to try to link the chemicals found in their bodies to having leukemia.

More research is needed to find out how variations in the SUOX gene affect the people who have them. We also need to learn whether this variation makes it more or less likely that a child will get leukemia. CDC hopes that this study of children in Sierra Vista will help to answer questions about what causes childhood leukemia.