

Higher birth-defect rate seen in Chernobyl area



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Wed Mar 24, 2010
3:43pm EDT

NEW YORK (Reuters Health) - Rates of certain birth defects appear higher than normal in one of the Ukraine regions most affected by the 1986 Chernobyl nuclear power plant disaster, according to a new study.

The findings, reported in the journal *Pediatrics*, stand in contrast to a 2005 U.N. report stating that there is no evidence of an increased risk of birth defects or other reproductive effects in areas contaminated by radiation from the Chernobyl accident.

The results point to a need for continuing research into birth defects in regions affected by chronic low-dose radiation from Chernobyl, according to researcher Dr. Wladimir Wertelecki of the University of Southern Alabama in Mobile.

"There has been a tendency to imply that the question is closed as far as the prenatal effects (of Chernobyl)," Wertelecki said in an interview.

The 2005 position statement from the International Atomic Energy Agency and other U.N. bodies may have had a "chilling effect" on research into congenital defects in Chernobyl-affected areas, Wertelecki notes in his report.

The current findings, he said, "suggest that we should re-evaluate that position."

For his study, Wertenlecki focused on the Ukraine province of Rivne, located about 155 miles from the Chernobyl nuclear power plant. The northern half of that province, known as Polissia, was designated as "significantly impacted" at the time of the disaster, and soil and food from the area remains contaminated with low levels of the radioactive substance cesium 137.

Wertenlecki found that among all 96,438 babies born in Rivne between 2000 and 2006, the rate of neural tube defects -- serious anomalies of the brain and spine, including spina bifida -- were higher than the average for Europe. In Rivne, 22 of every 10,000 babies were born with a neural tube defect, compared with a European average of 9 per 10,000.

What's more, the rate was particularly elevated in the Polissia area -- where 27 of every 10,000 babies were born with a neural tube defect, compared with 18 per 10,000 in the rest of Rivne.

Rivne also appeared to have elevated rates of conjoined twins -- 0.6 percent, compared with the roughly 0.2 percent average estimated for Europe -- and sacrococcygeal teratomas, which are congenital tumors on the tailbone. The teratoma rate was 0.7 percent in Rivne, whereas the published rates of the condition range from 0.25 to 0.5 percent.

Two other birth defects -- microcephaly, where the head is abnormally small, and microphthalmia, in which the eyes are undersized -- were more common in Polissia than in other regions of Rivne. There were 3.7 cases of microcephaly for every 10,000 children in Polissia, compared with 1.3 per 10,000 in the rest of Rivne; the rate of microphthalmia was 1.8 per 10,000, versus 0.4 per 10,000 in other regions.

The findings are "not definitive," Wertenlecki said. A limitation of the study is that it lacked information on pregnant women's actual radiation absorption.

It also lacked data on women's diets. This is important because the birth defects that were elevated in Rivne can also result from fetal alcohol exposure or, in the case of neural tube defects, a deficiency in the B vitamin folate early in pregnancy.

"In the Ukraine," Wertenlecki said, "alcohol is also a problem. Malnutrition is also a problem."

It is not clear to what extent alcohol, folate deficiency and low-dose radiation exposure may each explain the findings. It's also quite possible, Wertenlecki said, that all three factors work in combination to raise the odds of congenital defects.

More studies are needed to look at the relationship between actual radiation absorption and the risk of birth defects, as well as the possible interaction between low-dose radiation, prenatal drinking and nutritional deficiencies, according to Wertenlecki.

"Existing local resources and the expressed interest by Rivne authorities to nurture partnerships with national and international teams will facilitate such initiatives," he writes.

SOURCE: Pediatrics, April 2010.