Prenatal and Postnatal Exposure to Cell Phone Use and Behavioral Problems in Children

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FROM ABSTRACT:

Background:
The World Health Organization has emphasized the need for research into the possible effects of radiofrequency fields in children. We examined the association between prenatal and postnatal exposure to cell phones and behavioral problems in young children.

Methods:
Mothers were recruited to the Danish National Birth Cohort early in pregnancy. When the children of those pregnancies reached 7 years of age in 2005 and 2006, mothers were asked to complete a questionnaire regarding the current health and behavioral status of children, as well as past exposure to cell phone use. Mothers evaluated the child's behavior problems using the Strength and Difficulties Questionnaire.

Results:
Mothers of 13,159 children completed the follow-up questionnaire reporting their use of cell phones during pregnancy as well as current cell phone use by the child.

Greater odds ratios for behavioral problems were observed for children who had possible prenatal or postnatal exposure to cell phone use.

After adjustment for potential confounders, the odds ratio for a higher overall behavioral problems score was 1.80 [80% increased risk] in children with both prenatal and postnatal exposure to cell phones.

Conclusions:
Exposure to cell phones prenatally—and, to a lesser degree, postnatally—was associated with behavioral difficulties such as emotional and hyperactivity problems around the age of school entry.

THESE AUTHORS ALSO NOTE:

Exposure to radiofrequency fields is increasingly common.
“Between 2003 and 2008, there were more than 900 million new cell phone subscribers worldwide, with a total of more than 2 billion subscribers.”

Fetuses and children may be more vulnerable than adults to cell phone radiation.

“Children are potentially exposed during fetal life by maternal use of cell phones and then later in childhood when they themselves become users of cell phones. Exposures early in life may have particular importance because this is during vulnerable stages of brain development.”

An increasing number of children are being diagnosed with attention-deficit hyperactivity disorder (ADHD) or hyperkinetic disorder, and no epidemiologic studies have investigated cell phone use as a possible risk factor for behavioral outcomes with similarities to ADHD.

RESULTS

30% of children were using a cell phone at the age of 7 years, but fewer than 1% used a cell phone for more than 1 hour per week.

About 11% of children were exposed to cell phones both prenatally and postnatally.

“Children with exposure to cell phones (prenatally, postnatally, or both) tended to have higher percentages of borderline or abnormal scores for emotional symptoms, conduct problems, hyperactivity and peer problems.”

“The highest odds ratios for behavioral problems were observed for children who had both prenatal and postnatal exposure to cell phones compared with those who were not exposed during either time period.” For these children the risk was increased by 80%.

DISCUSSION

“Use of cell phones during pregnancy was associated with an increased odds of behavioral problems in children in this study.”

The specific absorption rate for children is higher than for adults, and the relative penetration is deeper for children.

“In a recent Swedish study, nearly half of 7-year-olds had access to cell phones and prevalence increased sharply with age, to 98% of 14-year-olds.”

“The immature nervous system is extremely vulnerable to toxicants, which can result in behavior-related toxicities that may not emerge until well into childhood, adolescence or adulthood.”
KEY POINTS FROM DAN MURPHY

1) “Between 2003 and 2008, there were more than 900 million new cell phone subscribers worldwide, with a total of more than 2 billion subscribers.”

2) Fetuses and children may be more vulnerable than adults to cell phone radiation.

3) “Children are potentially exposed during fetal life by maternal use of cell phones and then later in childhood when they themselves become users of cell phones. Exposures early in life may have particular importance because this is during vulnerable stages of brain development.”

4) The specific absorption rate of cell phone radiation for children is higher than for adults, and the relative penetration is deeper for children.

5) “Exposure to cell phones prenatally—and, to a lesser degree, postnatally—was associated with behavioral difficulties such as emotional and hyperactivity problems around the age of school entry.” In this study there was an 80% increased incidence of behavioral problems with such exposure to cell phones.

6) “Children with exposure to cell phones (prenatally, postnatally, or both) tended to have higher percentages of borderline or abnormal scores for emotional symptoms, conduct problems, hyperactivity and peer problems.”

7) “The highest odds ratios for behavioral problems were observed for children who had both prenatal and postnatal exposure to cell phones compared with those who were not exposed during either time period.” For these children the risk was increased by 80%.

8) “Use of cell phones during pregnancy was associated with an increased odds of behavioral problems in children in this study.”

9) “The immature nervous system is extremely vulnerable to toxicants, which can result in behavior-related toxicities that may not emerge until well into childhood, adolescence or adulthood.”