

Vitamin C May Cut Pregnant Smoking Risks

Researchers at Oregon Health & Science University have found that high doses of vitamin C might counteract some of the negative effects of smoking on unborn babies.

The researchers say their findings don't mean it's OK for pregnant women to smoke, but the results could lead to a treatment of a last resort if a woman is unwilling to kick the habit.

"The single most important thing is for pregnant women to stop smoking," said Dr. Eliot Spindel, senior scientist in the neuroscience division at OHSU's Oregon National Primate Center and one of the study's authors.

Despite decades of warnings and public health campaigns, roughly 12 percent of women keep smoking during pregnancy, according to federal health statistics.

The OHSU research, published Sunday in the American Journal of Respiratory and Critical Care Medicine, studied three small groups of infant rhesus monkeys.

Seven monkeys were born to mothers who received daily, 2 milligram doses of nicotine, comparable to those of a smoking mother. The breathing abilities and lung development of those monkeys were compared with seven monkeys born to mothers who had received both nicotine and daily 250 milligram doses of vitamin C during pregnancy.

A third group of six monkeys received neither nicotine nor vitamin C and were studied as a control group.

The researchers found that animals exposed to nicotine before birth had reduced air flow in the lungs compared to animals that were given nicotine and vitamin C, Spindel said.

The monkeys given nicotine and vitamin C had lung air flow close to that of a normal animal, he said.

Spindel said he doesn't know what mechanisms are causing vitamin C to have a protective effect against nicotine, but he has two theories.

One theory involves vitamin C's effect on connective tissues. Nicotine is known to be harmful to elastic tissues in the lungs, and it's possible that vitamin C may prevent that harm.

The other theory involves vitamin C's role as an antioxidant, protecting molecules in the body from damage by free radicals that are generated during normal metabolism and from exposure to toxins and pollutants.

While the study demonstrates vitamin C's promise for counteracting the effects of nicotine on lung function, the researchers note that vitamin C did not counteract other

negative effects of smoking during pregnancy, such as abnormal brain development and decreased body weight.

Dr. Michael Gravett, chief of maternal-fetal medicine at the OHSU School of Medicine, said that if he can't get his patients who smoke to quit during pregnancy, he plans to start telling them to take vitamin C.

The monkeys used in the study are very similar to humans during pregnancy, with the same type of placenta and a long gestational period, he said.

Gravett said the study showed that smoking had a much more adverse effect on fetal development than was previously thought, with smoking mothers causing changes in their babies' lungs.

"What happens to you as a fetus is extraordinarily important as to what diseases you may be susceptible to as an adult," Gravett said.