Pill Ups Cancer Risk in Young Women

Young women rarely develop breast cancer, but taking birth control pills increases the possibility that they will, a new study finds. After age 45, however, pill users are no more likely than other women to get the disease, the scientists say.

Since the mid-1980s, studies have suggested that taking oral contraceptives does not boost most women's risk of breast cancer (SN: 8/16/86, p.100) and may actually help protect them against ovarian cancer (SN: 3/21/87, p.180).

The picture for young women has appeared less clear-cut. Some studies have found a link between pill use and early onset breast cancer, while others have not, note Louise A. Brinton of the National Cancer Institute in Bethesda, Md., and her colleagues in the June 7 JOURNAL OF THE NATIONAL CANCER INSTITUTE.

These conflicting results suggest that researchers may have failed to investigate important factors, such as whether doctors screen pill users more carefully and therefore find their tumors earlier, Brinton and her group contend.

Brinton's team say they ruled out such possible causes of the link between oral contraceptives and early onset breast cancer in their new study of 2,203 breast cancer patients and 2,009 healthy women from Atlanta, central New Jersey, Seattle, and the Puget Sound. Of the group, 1,648 patients and 1,505 healthy women were under age 45; the rest were under 54. Between 71 and 76 percent of the group under 45 had taken the pill for at least 6 months.

The participants answered lengthy questionnaires about their diets, physical activity, breast exams, alcohol use, number of pregnancies, and other factors that may influence breast cancer.

Women under 35 who had used the pill for 6 months or more had slightly less than twice the risk of developing breast cancer as nonusers, Brinton and her colleagues report. Those who took the pill in the past 5 years or for 10 or more years were twice as likely to get the disease. Starting the pill before age 18 and taking it for more than 10 years put women under age 35 at three times the risk.

"Our results thus confirm and expand on several other investigations that have shown remarkably similar relationships" between breast cancer in women under age 35 and long-time use of oral contraceptives, Brinton's group asserts.

In light of these findings, "if one had daughters [under 35]. . . one would caution against using oral contraceptives, especially if they had a family history of breast cancer," contends Jonathan J. Li of the University of Kansas in Kansas City.

When looking at all participants under age 45, Brinton and her colleagues found that taking the pill for more than 6 months boosted the risk of breast cancer only slightly. Moreover, "neither duration of [pill] use nor use at an early age were particularly predictive of risk" among this group, the authors note.

Brinton and her colleagues are investigating whether the type of oral contraceptives the women under 35 took might help explain their cancer rate. The study participants began taking the pill after doctors had lowered estrogen and progestin doses. It's still unclear "what pattern of [pill] use might be most hazardous," notes Brinton.

Brinton argues that overall, the benefits of oral contraceptives may still outweigh the risks. Pill use at its current rate will add about 0.1 case of breast cancer per 10,000 women per year, her team reports. About 13 women per 100,000 age 20 to 34 develop the disease every year, according to the cancer institute. — *T. Adler*

Tired cats make lipid sleep hormone

Asked why he robbed banks, Willie Sutton blithely responded, "because that's where the money is." Using what he describes as the "Willie Sutton logic of natural products," chemist Richard Lerner of the Scripps Research Institute in La Jolla, Calif., looked in the cerebrospinal fluid of sleep-deprived cats for naturally produced substances capable of coaxing the brain to sleep.

The strategy paid off. Lerner and his team have identified in the tired cats' cerebrospinal fluid a simple molecule—a modified version of a fatty acid, or lipid—that induces sleep not only in cats, but in rats as well. The finding has the Scripps team speculating that they've found the first of a distinct family of brain hormones.

To hunt down a "sleep molecule," the researchers compared the cerebrospinal fluid of cats that had spent 22 hours on a slow-moving treadmill with samples from rested cats. One component appeared in somewhat higher concentrations in the sleepy cats. While it wasn't "an all-or-nothing situation," Lerner says, "it intrigued us enough to pursue it."

The researchers determined the structure of the component using a technique called mass spectrometry. As they report in the June 9 SCIENCE, the molecule they found is a simple fatty acid with a backbone of 18 carbons and a nitrogen component called an amide on one end.

To find out whether the molecule indeed plays a role in inducing sleep, the team synthesized it and injected it into rats. The rats fell asleep quickly and experienced prolonged periods of deep sleep. The compound has a similar effect on cats. The researchers even found the molecule, as well as a longer cousin, in humans.

Lerner and his colleagues don't know how the compound induces sleep, but Lerner speculates that it is actually a lipid hormone. Cells in the body readily produce fatty acids of any number of lengths, but adding an amide takes a lot of energy. "I wouldn't believe nature did it for nothing," says Lerner, pointing out that at least 50 percent of peptide hormones need an amide to function.

Lipid hormones such as prostaglandins play an important role in such functions as uterine contractions and platelet aggregation. But these, Lerner points out, are "complex, highly decorated" hormones. He suspects that the simple lipid hormones the team identified may regulate very primitive activities, including sleep and emotions.

Yusuf Hannun of Duke University Medical Center in Durham, N.C., says the lipid "is a very interesting molecule." He points out that while no one predicted the body would make such a costly compound, its discovery could "open a whole new field of study."

Lerner emphasizes that the tools of modern analytical chemistry enabled his team to find the "sleep molecule" and that the same methods may yield a "whole sea of information" about biological states such as hunger and stress. – *L. Seachrist*