A Toxic Chemical Is Linked to Liver Cancer

By Morton Mintz
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COLD SPRING HARBOR, N.Y., Sept. 12—A toxic industrial chemical that recently was found in the milk of 65 of 67 tested American nursing mothers was linked to liver cancer in humans today by a leading Japanese scientist.

The chemical, polychlorinated biphenyls (PCBs), is believed to be present in the fatty tissue of nearly every person in the United States, Japan and probably other industrialized countries.

The association of PCBs with human liver cancer—which is almost fatal generally within a year—developed from an episode in which about 1,000 persons in Yusho, Japan, over a period of a few weeks in 1968, ate rice oil accidentally contaminated with a total of 0.6 to 0.9 grams of PCBs.

Varying but apparently extremely high amounts of PCBs persisted in some of the victims' bodies. Many still report fatigue, headaches, fever, coughs, numbness in the limbs, severe skin eruptions, and digestive and menstrual disorders. Some infants born to victims had PCBs in their tissues at birth, and also had severe skin discolorations.

PCBs, extremely stable chemicals, are used in electrical equipment, paints, printing ink, adhesives and other products. They have been used widely for 45 years but were not regarded as environmental contaminants until 1966.

Dr. Tjkeshi Hirayama, a specialist in tracing the causes of human disease at the National Cancer Center Research Institute in Tokyo, told an international conference on cancer at Cold Spring Harbor Laboratory that five of the Yusho victims died of liver cancer within five years after eating the contaminated cooking oil. This figures out to a rate of 500 per 100,000, compared with the expected rate of 21 per 100,000.

Hirayama, in an interview later, said that the association between PCBs and liver cancer was definite in

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PCB, From A1

two cases and possible or probable in the remaining three. The two definite cases alone, he said, is a rate six times higher than normal. The all five cases translate into a 238-fold higher incidence, he said.

Hirayama's presentation followed a report by pathologist James R. Allen of the University of Wisconsin, who warned that "any level" of human exposure to PCBs "may be injurious to human health."

The Yusho rate—reinforced by data on brain changes in monkeys and other adverse effects in animals cited by Allen—suggest a "high probability" that PCBs caused the liver cancers, Hirayama said.

As for the hundreds of millions of persons who have ingested much smaller amounts of PCBs, mainly in their food, Hirayama said, "I am concerned about the implications for people everywhere . . . There is no question the problem is serious."

Although Hirayama previously had reported the liver cancer risk calculations in Japan, they came as a surprise to several attending scientists who specialize in causes of environmental cancer.

Hirayama's disclosure "is one of the most worrisome sets of data that we have recently seen," said one of these scientists, Dr. Irving J. Selikoff of the Mount Sinai School of Medicine in New York City.

The Environmental Protection Agency recently reported that PCBs had been found in tests of milk of mothers who live in 30 states. EPA and Department of Health, Education and Welfare officials have set Sept. 23 for a meeting with obstetricians and pediatricians about how to advise mothers about breast feeding.

The concentration of PCBs in the mothers' milk fat was highest, 108 parts per million, in a Michigan woman, while it averaged 1.4 ppm in 12 Virginia women. Overall, the average was 1.9 ppm.

The temporary maximum allowed by the Food and Drug Administration is 0.3 ppm for infant and junior food, but is 2.5 ppm for cow's milk on grocers' shelves.

In recent studies reported by pathologist Allen, female monkeys that consumed PCBs at a rate of 2.5 ppm had much higher concentrations—up to 16 ppm— in their milk fat. Exposed to this "severe toxicity," Allen said, their breast-fed infants developed skin discoloration, acne, loss of eyelashes, and swelling and congestion of the eyelids.

The infants improved when weaned from milk containing PCBs, but, Allen said, a 1973 study showed that "behavioral and learning deficits" had persisted for at least a year and may still continue.

Allen recalled that the first indication that PCBs may be linked to cancer came from a Japanese study of mice in 1972. In a study of rats reported in 1975, 82 per cent of PCB-fed rats developed apparently malignant liver growths.

Not yet knowing of Hirayama's calculations of the human-liver cancer increase at Yusho, Allen based his concern that PCBs may be carcinogens on animal data, saying, "There are only suggestions that a higher incidence of cancer occurs in persons exposed to PCB."

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