BRAIN TUMOR/PETROCHEMICAL LINK PROBED

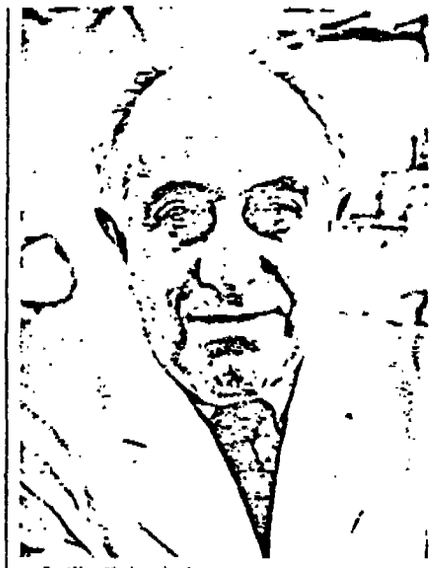
The possibility that workers in the petrochemical industry have an elevated risk for developing brain tumors continues to receive intense, and unusually public, scientific scrutiny. But conclusions about the extent and even the existence of a genuine health problem that might be caused by workplace exposure to carcinogens remain tentative and controversial.

The latest tableau of this issue was played out during a three-day, polite but often smoldering workshop on "brain tumors in the chemical industry," sponsored by the New York Academy of Sciences in New York City. The meeting was convened in rapid response to a request last summer from officials of the Occupational Safety & Health Administration and scientists from that agency; from its research arm, the National Institute for Occupational Safety & Health; and from other federal and medical institutions.

The organizers of the workshop called the meeting extraordinary not only for its scientific breadth but also for its being representative of a novel effort to identify and to solve an emerging public health problem before it gets out of hand. That very effort—to anticipate a problem by analyzing often sketchy health records and items such as county death certificates—is understandably loaded with technical difficulties. Also equally understandable, it is charged with economic, political, and almost philosophical tensions.

Several petrochemical plants and refineries in Texas are the focus of major attention during the current controversy. In particular, a moderate-sized Union Carbide plant in Texas City and a Dow Chemical facility in Freeport have been under close scrutiny. But several other facilities, including three additional refineries in the Port Arthur-Beaumont area of the Texas Gulf Coast also are involved.

The Union Carbide facility is getting perhaps the hardest look. So far, 18 brain cancer deaths between 1956 and 1980 have occurred among male workers at that plant. "We believe this is the largest single series of presumably occupationally related brain cancers reported to date," says an OSHA epidemiology group. "A preliminary estimate reveals a plant-wide excess brain cancer risk twice that expected among 6800 white males at the plant since 1941."



Selikoff: brain tumors are uncommon

A similar risk estimate, namely two times higher than normal for brain cancer, has also been ascribed to workers at some of the other facilities in Texas.

Other analysts have reached just the opposite conclusion, however. For example, a group of epidemiologists at Dow says, about the company's Texas plant, "Preliminary calculations of expected deaths from [brain tumors] among the employees suggest there is no excessive risk."

"It's not unusual for epidemiological data to be conflicting," says OSHA head Eula Bingham. And she adds that it would be "unfair to working men and women" if the disagreeing parties were not brought together "to come to grips with this problem."

The problem is formidable in more ways than one, and promises to be anything but straightforward. "Brain tumors are uncommon, one can almost say rare," says meeting organizer and epidemiologist Irving P. Selikoff of Mount Sinai School of Medicine in New York. "Things that cause cancer are rarely site specific." Thus, whatever is causing the brain tumors in Texas may prove difficult to identify. Also, it could prove to be related only indirectly to the workplace, or unrelated altogether.

So far, everyone agrees that no one chemical or group of chemicals is emerging as the likely culprit for inducing brain tumors. Candidate compounds, including vinyl chloride, benzene, vinylidene chloride, and diethyl sulfate, are present in significant amounts in certain operations at some of the Texas petrochemical facilities. The compounds are known human carcinogens. However, "none can be linked definitely to people who had brain tumors," says NIOSH official Anthony Robbins

There are other vexing questions. Similar petrochemical plants at other locations, so far, report no unusual incidence of brain tumors among their employees. Moreover, some of the employees of the Texas plants who died because of brain tumors worked only for short periods at the plants or in some cases did not work in areas in which exposure to chemicals was (under ordinary circumstances) unusually high. Such analysis is complicated, inasmuch as it involves identifying workplace experiences of people who have been dead for a decade or more.

The list of vexing questions, apparent false scents, and the many bits of inconsistent information is much longer. No one denies that.

But there is a sense among many but by no means all of the scientists that this just might be another emerging instance of a workplace horror story. This possibility, however unlikely, is one that forcibly beckons federal regulators responsible for ensuring the safety and health of workers. "Occupational disease is preventable when we can pinpoint the cause," asserts NIOSH's Robinson.

The recent workshop represents an attempt to pool all the available clues regarding those causes. That information, drawn from programs testing chemicals for carcinogenic activity in animals and from ongoing epidemiologic studies that do not revolve around the chemical industry, makes a highly fragmented picture at best.

"To the extent that we scientists can make a contribution, we felt it urgent that this be done," Selikoff says. "NIOSH and OSHA have defined a cluster [of brain cancer incidence] in a very important U.S. industry. Public health problems have to take precedence." □