To E. E. Rumberger Date 1983 Aug.02 Hour

From R. M. James

Subject:— Asbestos

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For your information.

(Also sent to TBB and JES).

BDD	AUG 3 1983	SC
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RMJ		PW
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BEP		~~EDS~~



621/83 RETINAL DEGENERATION IN RATS EXPOSED TO AN ORGANOPHOSPHATE PESTICIDE (FENTHION). H. Imai, et al. Environ. Res. 30: 453-465, April 1983. 20 refs.

Pigmented (Long-Evans) and albino (Wistar) rats were chronically exposed to an organophosphate pesticide (fenthion). Fenthion (50 mg/kg) was administered subcutaneously twice a week for 1 year; the total dosage for each animal ranged from 1.6 to 1.8g. Concurrent with the fenthion administration, the amplitude of the scotopic electroretinogram (ERG) gradually declined, disappearing by the 12th month in all treated pigmented rats. For the albino experimental rats, however, the ERG amplitude disappeared as early as the 6th month in 7 out of 15 treated animals. Funduscopically, degeneration of the retina was observed in all rats when ERG responses had disappeared. Histopathological studies confirmed degeneration of the sensory retina and marked abnormalities in the pigment epithelium cells. Treated pigmented rats also had reduced a rhodopsin concentration in the retina by the 3rd month even though the photoreceptors were structurally normal. Interestingly, the plasma vitamin A levels remained normal and liver stores of vitamin A actually increased during the course of the study. Levels of butylcholinesterase in plasma and liver, on the other hand, were extremely reduced after 3 months of fenthion treatment. In general, the biochemical and functional (ERG) changes appeared before any structural damage could be detected in the retina.

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622/83 PERSISTENCE OF SYMPTOMS AFTER MILD TO MODERATE ACUTE ORGANOPHOSPHATE POISONING AMONG 19 FARM FIELD WORKERS. M.D. Whorton and D.L. Obrinsky. J. Toxicol. Environ. Health 11: 347-354, March 1983. 7 refs.

Exposure to 2 organophosphate pesticides occurred when entry into a cauliflower field was permitted 4 h after application of highly toxic chemicals. It resulted in acute illness of mild to moderate degree in 19 farm workers, including 3 children and 1 pregnant woman. There were no fatalities. Two to three months were required for recovery from major symptoms and return to normal acetylcholinesterase levels. An exception was the presistence of eye symptoms in the majority 4 mo after the day of exposure.

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INDUSTRIAL DUSTS AND INHALANTS

623/83 CANCER PRODUCED BY NONOCCUPATIONAL ASBESTOS EXPOSURE IN THE UNITED STATES. P.E. Enterline. J. Air Poll. Control. Assn. 33: 318-322, April 1983. 31 refs.

There is considerable evidence of asbestos fibers in the general environment, and asbestos fibers can be found in the lungs of most adults in urban areas of the western world. Concentrations in large urban areas appear to average around 3 ng/m^3 of air and in rural areas around 0.1 ng/m^3 of air. For the entire U.S. population it can be estimated that the average population exposure is 1.5 ng/m^3. Based on the results of case control and other studies, it is estimated that about a third of the 1000 or so cases of malignant mesothelioma that occur in the U.S. each year appear to be related to this type of nonoccupational asbestos exposure. This is a lifetime risk of 100 per million population. Lung cancer caused by asbestos in the general environment can be estimated from linear extrapolations of dose-response data arising from occupational studies. Using data from a study of retired asbestos products workers it is estimated that the lifetime risk of lung cancer due to continuous asbestos exposure at 1.5 ng/m^3 is 2 per million. Possible causes for a fifty-fold difference between lung cancer and mesotheliomas caused by nonoccupational exposure to asbestos are discussed. These estimates are compared with estimates derived from a recent report commissioned by the West German government.

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624/83 EFFECT OF CHRYSOTILE AND CROCIDOLITE ON THE MORPHOLOGY AND GROWTH OF RAT PLEURAL MESOTHELIAL CELLS. M.C. Jaurand, et al. Environ. Res. 30: 255-269, April 1983. 14 refs.

The effects of the UICC asbestos fibers chrysotile A and crocidolite on the morphology and growth of rat pleural mesothelial cells were examined. The response was different according to the fiber used. Within 4 hr of treatment with 5, 10, 20, or 50 µg/ml of chrysotile fibers, cell morphology showed intense vacuolization, in both logarithmic and confluent cells. Following treatment of growing cells with 20 or 50 µg/ml of chrysotile fibers, cell spreading was also observed. Four hours after treatment of cells with 5, 10, or 20 µg/ml of crocidolite fibers, no such changes were seen. Vacuolization appeared later and was much less marked than for chrysotile fibers. The mesothelial cell population-doubling time of about 30 hr was not significantly altered by addition of 5 to 20 µg/ml of crocidolite fibers, but a concentration of 50 µg/ml lengthened doubling time to about 90 hr. Treatment with 5 or 10 µg/ml chrysotile fibers usually prolonged this time, but 20 or 50 µg/ml

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