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HEPATOCARCINOGENICITY OF POLYCHLORINATED BIPHENYLS IN MICE

The acute and chronic toxicity of polychlorinated biphenyls (PCB) in mice, rats, and dogs has been reported by many workers.¹⁾ This communication reports studies on hepatocarcinogenic effect of polychlorinated biphenyls in dd mice.

Male dd mice with an average weight of 19.0g were used. A total of 114 mice were divided into the following 10 groups and the animals were fed on a basal diet (Oriental NMF) supplemented with various kinds of polychlorinated biphenyls, Kanecrol-500, Kanecrol-400, and Kanecrol-300 which are classified by the number of chlorines, purchased from Kanegafuchi Chem. Co., Osaka. Group 1, 500 ppm Kanecrol-500; Group 2, 250 ppm Kanecrol-500; Group 3, 100 ppm Kanecrol-500; Group 4, 500 ppm Kanecrol-400; Group 5, 250 ppm Kanecrol-400; Group 6, 100 ppm Kanecrol-400; Group 7, 500 ppm Kanecrol-300; Group 8, 250 ppm Kanecrol-300; Group 9, 100 ppm Kanecrol-300; Group 10, basal diet alone. Each group contained 6 to 12 mice. The animals were given water and the experimental diet freely. After 32 weeks, mice were sacrificed with ether and examined histologically.

Grossly, 7 of the 12 mice (58.3%) in Group 1 had many tumors in the liver. The liver in-

creased in weight, and had a rough surface with multiple tumors up to 0.2 to 1.0 cm in diameter. In other groups, except in Groups 1 to 3, no remarkable changes were observed in the liver of mice. Microscopically, hepatomas were observed in the liver of mice in Group 1. Some area of nodules showed adenomatous pattern. Many necrotic foci were seen in Group 1 animals. Nuclear irregularities and mitotic figures were frequently seen in non-tumorous areas of the liver in Group 1. However, microscopical changes in the liver were not observed in Groups 4 to 9.

From the present results, the hepatomas induced in mice by the Kanecrol-500 of polychlorinated biphenyls appeared similar to those induced by α -isomer of benzene hexachloride²⁾ but Kanecrol-400 and Kanecrol-300 of polychlorinated biphenyls had no carcinogenic activity in the liver of mice. This work will be reported in detail later.

REFERENCES

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Department of Hygiene

Nara Hygienic Institute
Cancer Center Institute
Nara Medical University,
Kashihara, Nara 634

Hiroshi Nagasaki (長崎 弘)
Shosuke Tomii (富井 昌輔)
Tomoichi Mega (蓑鹿 友一)
Masao Marugami (丸上 昌男)
Nobuyuki Ito (伊東 信行)