

acid have been shown, at times, to be associated with impaired liver function, abnormal carbohydrate metabolism (as reflected by glucose tolerance tests), elevated blood uric acid levels and recurrent unpleasant vasodilatation and occasionally gastric symptoms. A wide variety of additives, preservatives, vitamin supplements, flavoratives, coloring agents, and so forth, have been added to food for many years. In general, most of these additives appear to be beneficial and, indeed, if it were not for the use of many chemical fertilizers, insecticides, herbicides, etc., our food could be seriously threatened. The principles of the addition to food, both fresh and processed, of preserving or fortifying agents in amounts that can be shown not to be harmful is a sound one. However, in the opinion of the authors, the use of such additives should be properly controlled and regulated in order to avoid misuse, and the product in which it has been used should be properly labeled or some other method of making the consumer aware of the additive should be utilized.

-- Cond. from authors' summary

- 1136 Experimental Studies in Metal Carcinogenesis. Chromium, Nickel, Iron, Arsenic. W. C. Hueper and W. W. Payne. Arch. Environmental Health 5, 445-462 (Nov. 1962).

Experimental evidence indicates that hexavalent and trivalent chromium possesses carcinogenic properties. Highly water-soluble trivalent and hexavalent chromium compounds when brought in contact with tissue at frequent intervals and in low concentrations to avoid significant corrosive effects are capable of producing cancers. The tumor yield obtained by repeated intratracheal instillation of suspensions of 3 carcinogenically highly potent chromates, calcium chromate, zinc chromate, and strontium chromate, was remarkably low and limited to the formation of sarcomas in the lung. Immunochemical investigations with chromium-protein complexes showed that such agents are capable of eliciting chromium-specific antibodies. Tests for the presence of immune bodies in the serum of chromate producers gave equivocal results. While powdered nickel implanted intrapleurally into rats elicited cancers in about one-third of the animals, intrapulmonary deposited nickel powder produced intrapulmonary sarcoma in only one of 34 rats. The inhalation of powdered metallic nickel in combination with sulfur dioxide by rats and hamsters did not give rise to lung tumors in any of 2 species studied suggesting that the combined action of a purely irritative chemical, such as sulfur dioxide, with a carcinogen does not necessarily induce a carcinogenic response by the lung. Rats implanted intrapleurally with finely powdered chemically pure iron or fed arsenic dissolved in water or a 12% alcoholic solution did not develop any cancers in the target organs, i.e., the lung or mediastinum or the skin, lung, and liver, respectively.

-- Authors' conclusion

- 1137 Edetate Kidney Lesions in Rats. M. D. Reuber and G. C. Schmieler. Arch. Environmental Health 5, 430-436 (Nov. 1962).

Lesions simulating "versene nephrosis" in human beings have been produced in rats with disodium ethylenediaminetetraacetate (Sodium Versenate or Na edetate). Rats were injected intraperitoneally with varying dosages of Na edetate, Ca edetate, or Pb edetate and killed at different time intervals. Some rats were given daily injections for 21 days and then killed 2 weeks after completion of the injections. Na edetate, in 400 and 500 mg. doses, produced severe hydropic degeneration of the proximal convoluted tubules of the kidney in all rats. Calcium disodium ethylenediaminetetraacetate (Ca edetate) in the 500 mg. dose produced only minimal focal hydropic changes in 58% of animals. The lesions had almost disappeared 2 weeks after the Ca edetate had been stopped. All rats given lead disodium ethylenediaminetetraacetate (Pb edetate) developed mild focal changes. The degeneration in the rats given Pb edetate was followed by regeneration of cells lining the proximal convoluted tubules. Lesions developed more slowly with lower dosages of Ca edetate and Na edetate and were reversible even though the injection of the drugs was continued.