

- 49 Kinetics of the Distribution and Excretion of Lead in the Rat. N. Castellino and S. Aloj.
Brit. J. Ind. Med. 21, 308-314 (Oct. 1964).

The kinetics of the distribution and excretion of lead (Pb-210) were studied in rats for 14 days after single intravenous injections of 100 micrograms of lead per rat. The results show that in the blood the lead is bound mainly to the cells, and that the ratio of lead in the cells and plasma is constant throughout the whole period. Pb-210 is rapidly distributed in the tissues, the highest concentrations being in the kidneys, liver, and bones. The kinetics of the disappearance of Pb-210 from the organs and tissues follow the pattern of first order reactions. The disappearance curves in the blood, plasma, hematic cells, and some other tissues can be expressed as sums of exponential functions. In contrast, the removal of metal from the bone tissue occurs at a constant and extremely slow rate. The metal is excreted by the feces and urine. The rates reach their maxima within 24 hours and decrease asymptotically afterwards. More Pb-210 was excreted in the feces (35.7%) than in the urine (15.9%) during the 14 days of observation.

-- Authors' abst.

- 50 Plasma Porphyrins in Lead Workers. H.A. Waldron.
Brit. J. Ind. Med. 21, 315-317 (Oct. 1964).

Plasma porphyrin levels were determined in a group of 50 workers exposed to lead. The mean value obtained (0.7 microgram/100 ml.) was found to be higher than that obtained from a control group (0.2 microgram/100 ml.). Although urinary porphyrin levels in the lead workers were also higher than in the control group, no correlation was found between plasma porphyrin levels and urinary porphyrin levels. Chromatography of the plasma porphyrins from lead workers showed that some protoporphyrin was present in addition to the coproporphyrin found in plasma from the control group.

-- Author's abst.

- 51 Relations Between Lead Poisoning in Rabbit and Man. G.M. Hass, et al.
Am. J. Pathol. 45, 691-727 (Nov. 1964).

Young rabbits were fed a basal diet variably supplemented with lead subacetate, cholesterol and commercial boiled linseed oil containing a "lead drier" for periods of 3 to 55 weeks. A study was made of the pathologic effects of the supplements and these effects were compared with those commonly attributed to lead poisoning in man. The hematologic disturbances produced experimentally were similar to those found in human cases of lead poisoning. There was a self-limited progressive anemia characterized by decreased hemoglobin, stippling of erythrocytes, poikilocytosis, polychromatophilia, erythroblastemia and evidence of hemolytic activity with accumulation of erythrocytes and hemosiderin in reticuloendothelial cells. As these changes increased in severity they were often accompanied by a relative lymphocytosis and monocytosis without undue immaturity of circulating leukocytes or evidence of interference in blood platelet production. The experimental lead nephropathy was also similar to that found in patients with lead poisoning. It was characterized principally by an accumulation, first in the straight tubules and later in the convoluted tubules, of an intracytoplasmic brown granular pigment followed by the appearance of giant "anaplastic" tubular lining cells and eosinophilic intranuclear inclusion bodies. There was no resemblance between the osteopathy occurring in young rabbits and rachitic changes described in children with lead poisoning nor was there any "lead line" demonstrated microscopically or by x-ray in bones of the experimental animals. A form of encephalopathy or motor neuropathy, attributed to lead poisoning in infants and adults respectively, was not produced experimentally. Many different disturbances in visual function and neuroretinal structure have been attributed to lead poisoning in man. None of the described pathologic changes resembles those which occurred in the retina of the rabbit. There are 63 references.

-- Cond. from authors' summary

- 52 Pesticides and Pest Control. B.N. Smallman.
Can. J. Public Health 55, 211-215 (May, 1964).

The virtues of organic pesticides for pest control and the hazard to health involved in their use are discussed. Comparisons are made with other pest control methods such as the development of pest-resistant crop varieties, the use of living organisms as control agents, and other biological and genetic concepts of pest control. Integration of several methods of pest control is indicated as the best hope for the future.

-- Public Health Eng. Absts.