

FILE NAME: Chemical Abstracts (CHAB)

DATE: 1968

DOC#: CHAB058

OCUMENT DESCRIPTION: Abstract Originally Published in 1965 by Hardy

be practically healthy, 29 to suffer from asthenic conditions, and 20 from an asthenoneurotic syndrome and astheno-nervous dystony. The HgCl_2 blood plasma test of all 3 groups yielded an av. of 1.82, as against 1.92 for the controls, and the av. plasma γ -globulins in cases with slightly enlarged liver was 1.90 g. %, vs. 1.55 g. % in healthy individuals, while the bilirubin and cholesterol, as well as the prothrombin, formol, and aldolase tests generally showed no deviation from normal. The shifts in the blood serum protein pattern in exposure to I was not linked with liver damage, but represented a general nonspecific reaction to I.

A. A. Horvath

Oxidative metabolism in the liver tissue of dioxane-poisoned rabbits. P. A. Rozenberg. *Prof. Zabolevaniya v Khim. Prom.* 1965, 103-8 (Russ). Rabbits of 1.5-2.2 kg. body wt. received, by stomach tube, 2.5 ml. dioxane (I) in aq. soln./kg. body wt., followed by repeat higher I doses if there were no clin. symptoms of intoxication, and their blood nonprotein N (NPN) detd. colorimetrically. When the NPN reached 300 mg. %, the animals were sacrificed by decapitation, the kidney cortex comminuted on ice, and the respiratory performance of the pulp, as well as its deamination performance towards DL- α -alanine, detd. following 1-hr. incubation at 37.5° in a Warburg app. and NH_3 and pyruvate formed in the filtrate were analyzed. Microscopic examn. of the kidneys revealed a pronounced picture of hydropic nephrosis, with a partial necrosis of the epithelium of the convoluted tubules. In severe cases of I intoxication with high NPN, the O consumption fell to 50% the CO_2 formation to 37%, the NH_3 formation to 13%, and the pyruvate to 33% fold, of healthy kidney tissue, while in mild cases, the resp. figures showed only slight deviations from normal. Development of anuria and uremia in I poisoning is due to an impairment of the oxidative processes in the kidney tissue.

A. A. Horvath

Biochemical changes in the blood in acute intoxications by some chlorinated hydrocarbons. I. V. Pavlova, P. A. Rozenberg, N. K. Byalko, and I. A. Gel'fon. *Prof. Zabolevaniya v Khim. Prom.* 1965, 217-24 (Russ). The blood of 35 patients with ethylene chloride (I) or CCl_4 poisoning was analyzed on the 2nd-4th day following exposure and subsequently at 2-3 day intervals for a no. of constituents indicative of liver or kidney involvement. In most of the mild cases of poisoning, the bilirubin and aldolase increased slightly, the albumin/globulin ratio dropped, while the phospholipids and cholesterol remained unchanged, all the indices returning to normal within 10 days. In cases of CCl_4 poisoning of medium severity, the total blood proteins rose up to 9.5-9.7%, due mainly to higher globulin fractions, remaining high during the subsequent 6-9 months, while the initially increased aldolase soon returned to normal. In a few cases, the activity of alk. phosphatase showed a considerable rise, while the figures for bilirubin and lipids resembled those of mild cases, and nonprotein N (NPN) was within normal limits. In a severe I poisoning case, reported in detail, the blood NPN reached 390 mg. % and the indican-test was also strongly pos., with bilirubin 30 mg. %, indicating severe kidney and liver involvement. In some patients, the blood cholesterol was slightly elevated, while in some of the severe cases it was somewhat below normal, a possible indication of injury to the cholesterol synthesis function of the liver. 14 references.

A. A. Horvath

Comparative psychophysiological studies of alcoholic and non-alcoholic subjects undergoing experimentally induced ethanol intoxication. Jack H. Mendelson, Stefan Stein, and Michael T. McGuire (Massachusetts Gen. Hosp., Boston). *Psychosomat. Med.* 26(1), 1-12 (1966) (Eng). To study the possible assocn. of chronic alcoholism with adaptive changes in EtOH metabolism, 4 chronic alcoholics and 4 nonalcoholics were given bourbon equiv. to a daily total of 4 g. EtOH/kg. body wt./day for 4 days, taken at 4-hr. intervals. Vomiting and gastrointestinal pain reduced the intake by nonalcoholics to 2.4-3.7 g./day; their serum EtOH levels were lower than in the alcoholics. Though intakes by alcoholics were max., and they had no gastrointestinal problems, their EtOH levels varied. Before the drinking period, EtOH metabolic rates, estd. from $^{14}\text{CO}_2$ exhalation after ingestion of EtOH- $1\text{-}^{14}\text{C}$, were lower in 3 of 4 nonalcoholics than in the alcoholics; after drinking, rates changed variably. Values for routine urinalysis, hematocrit, and serum levels of Na^+ , K^+ , Cl^- , Ca^{++} , P, alk. phosphatase, bilirubin, cephalin flocculation, and thymol turbidity showed no differences before and after drinking, or between the groups. On the 4th drinking day, serum glutamic-oxalacetic transaminase levels of nonalcoholics were more than twice the predrinking values; these control values were regained by 10 days after drinking. Values did not change in the alcoholics.

Kathryn Knowlton

Congenital malformations in lambs reproduced by feeding a poisonous range plant. Wayne Binns, Lynn F. James, and James L. Shupe (U.S. Dept. of Agr., Logan, Utah). *Southwestern Vet.* 17(3), 221-4 (1964) (Eng); cf. *Am. J. Vet. Res.* 103, 1164-75 (1963). The presence of a teratogenic agent for ewes in *Veratrum californicum* tops is confirmed. Martin Jacobson

Response of mice to the chelating agents sodium diethyldithio-

zone. William W. Carlton (Massachusetts Inst. of Technol., Cambridge). *Toxicol. Appl. Pharmacol.* 8(3), 512-21 (1966) (Eng). Weanling male mice were fed for 7 weeks the chelators diethyldithiocarbamate, α -benzoinoxime, and bis-cyclohexanone oxaldehydrazone (cuprizone) mixed with chicken mash contg. 10% lard. Diethyldithiocarbamate or α -benzoinoxime at 0.1% and 0.5% of the diet did not produce clin. signs of intoxication. Growth was not affected; gross and microscopic lesions were not observed in several tissues examd. Growth, reduced slightly by 0.1% cuprizone, was severely depressed by a level of 0.5%. Clin. signs were restricted to paresis in the latter group. Microscopic lesions present at both levels of cuprizone feeding were confined to the central nervous system and consisted of edema, most prominent in the cerebellar cortex, and a noninflammatory demyelination. Edema was, however, also observed in the cerebellar medulla and midbrain. Hydrocephalus and cerebral edema occurred in mice fed cuprizone at a level of 0.5% of the diet. Supplementation of the 0.5% cuprizone diet with 25, 50, or 100 ppm. Cu did not alter significantly the neural lesions induced by the chelator. Only cuprizone feeding interrupted pregnancy. Pregnant mice fed 0.5% and 0.3% cuprizone from the 3rd day of pregnancy failed to deliver young. The former level resulted in a high percentage of nonviable young when feeding was started on the 9th day of gestation. A level of 0.1% cuprizone did not affect pregnancy when fed from the 3rd or 9th day of gestation. A Cu supplement of 130 ppm. increased the no. of viable young when added to the 0.5% cuprizone diet and fed from the 9th day of gestation, but no young were produced when feeding began on the 3rd day of gestation. RCZB

Reversal of a soman-induced effect on neuromuscular function without reactivation of cholinesterase. Ted A. Loomis and Dennis D. Johnson (School of Med., Univ. of Washington, Seattle). *Toxicol. Appl. Pharmacol.* 8(3), 528-32 (1966) (Eng). The isotonic response of the anterior tibial muscle of the rat to indirectly applied dual stimuli was studied in normal and soman-poisoned animals. Indirectly induced dual responses of the muscle are of equal amplitude in the normal animal at the inter-stimulus intervals employed, but, in the soman-poisoned animal, the response to the 2nd of the dual stimuli is impaired. The amplitude of the 2nd response is directly related to the time interval between the stimuli. Maximal effect on the dual response is evident after a dose of 0.1 mg. of soman/kg. This effect of soman which is accompanied by inhibition of acetylcholinesterase activity in the anterior tibial muscle can be partly or completely reversed, depending on the dose of soman, by administration of piperidylmethylandrostanediol without reactivation of muscle acetylcholinesterase. RCZB

Asbestos related disease. Harriet L. Hardy. *Trans. Assoc. Am. Physicians* 78, 204-17 (1965) (Eng). A review of the occurrence, etiology, and pathol. changes produced in asbestosis, esp. as an industrial disease. Evidence is impressive that asbestos exposure, often delayed in effect, will in the future be responsible for an important amt. of pulmonary disease, esp. chest tumors. In addn., new evidence points to asbestos exposure as significantly assocd. with abdominal tumors as well. 30 references.

Joseph S. Hepburn

Effect of carbon tetrachloride on phosphoprotein metabolism in the liver. R. P. Vinogradova (T. G. Shevchenko State Univ., Kiev). *Ukr. Biokhim. Zh.* 38(1), 27-32 (1966) (Ukrain). A 20% decrease of phosphoserine P was observed 24 and 48 hrs. after intragastric administration of 0.1 ml. of CCl_4 /200 g. to guinea pigs. Specific and relative activities of phosphoserine P increased by 28 and 20%, resp., after 24 hrs., and returned to normal after 48 hrs. Phosphoproteinase activity (per mg. of P) increased by 18% and ATP P diminished by 22%. Specific and relative activity of ATP rose by 60 and 50%, resp., after 24 and practically returned to normal after 48 hrs. The content of inorg. P increased by 46 and 50%, resp., after 24 and 48 hrs., while its specific activity remained unchanged. N. Jasinczuk

Proteinuria in chronic cadmium poisoning. III. Electrophoretic and immunoelectrophoretic studies on urinary proteins from cadmium workers, with special reference to the excretion of low-molecular-weight proteins. Magnus Piscator (Karolinska Inst., Stockholm). *Arch. Environ. Health* 12(3), 335-44 (1966) (Eng); cf. *ibid.* 5(4), 325-32 (1962); *CA* 57, 6263b. In urine samples from 18 of 40 Cd workers, previously studied in 1959-60, there was found no appreciable difference in excretion of total protein in 1962-3, the means being 648 and 672 mg./24 hrs. Low-mol.-wt. proteins constituted 10% of the total. Excretion of muramidase was not correlated with that of total protein. Quant. glucose detn. showed an increase of >200 mg. daily in 10 subjects, with no assocn., with protein excretion. Fructose was present in urine of some subjects and controls. Excretions of α -amino N and of P were outside normal limits in 2 samples each. There was a marked increase in Cd excretion in one of 6 samples analyzed, amounting to 130 μ /24 hrs. The electrophoretic pattern was characterized by an albumin fraction <25% and by a large β -globulin fraction averaging ~23.6% of the total. Albumin, α -glycoprotein, transferrin, γ -globulin, and long α -