Bromism from excessive cola consumption

Horowitz BZ, JOURNAL OF TOXICOLOGY CLINICAL TOXICOLOGY; 35 (3). 1997. 315-320

Historically bromism has been known to occur with chronic ingestion of bromide salts used as sleep medications. In this case, excessive consumption of a cola with **brominated vegetable oil** caused a severe case of bromism. The patient presented with headache, fatigue, ataxia, and memory loss which progressed over 30 days. He consumed 2 to 4 L of cola containing **brominated vegetable oil** on a daily basis before presenting with these symptoms. His significantly elevated serum chloride, as measured by ion specific methods and negative anion gaps were overlooked during a prior hospitalization and emergency department visits. A focal neurologic finding of right eyelid ptosis led to an extensive evaluation for a central nervous system lesion. The patient continued to deteriorate, until he was no longer able to walk.

Behavioral and reproductive effects of chronic developmental exposure to brominated vegetable oil in rats

Vorhees CV; Butcher RE; Wootten V; Brunner RL, Teratology. 1983, Dec; 28(3):309-18

Adult Sprague-Dawley rats were fed diets containing 0, 0.25, 0.5, 1.0, or 2.0% of the food additive **brominated vegetable** (soybean) **oil** (BVO) for 2 weeks prior to mating. After conception, the diets were continued throughout gestation and lactation for the females. The same diets were also provided to the dams' offspring throughout their development (up to 90-120 days of age). BVO at 2.0% of the diet completely blocked reproduction. BVO at 1.0% of the diet severely impaired conception, reduced maternal body weight, and produced slightly reduced litter sizes but no evidence of malformations. At this dose postnatal mortality was high, and survivors showed impaired growth and severe behavioral impairments on a battery of standardized tests of functional development. After weaning, adequate data could not be obtained because of the high mortality rate in this group. BVO at 0.5% of the diet produced less reproductive interference and much less offspring mortality or impairment of growth, but produced behavioral impairments almost as severe as seen in the BVO 1.0% group. In addition, this group exhibited severely reduced postweaning activity, delayed vaginal patency development, and reduced day-90 weight. BVO at 0.25% of the diet produced reproductive deficits similar to the BVO 0.5% group, but less severe effects on growth and behavioral development. This group showed no significant increase in offspring mortality. The data demonstrate clear evidence of dose-related physical and behavioral developmental toxicity.

Toxic effects of brominated vegetable oils in rats

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Groups of 15 weanling male and 15 female rats were fed semipurified diets containing 0, 0.1 or 0.5% brominated corn, cottonseed, olive or sesame oil for 105 days. Food consumption and

body weight gain were normal. With the exception of male rats fed brominated olive oil, all rats fed 0.5% of the brominated oils had increased relative heart weights. Rats fed 0.5%, but not those fed 0.1%, brominated oil had degenerative myocardial lesions characterized by myocytolysis and fatty change. All rats fed the brominated oils had fatty changes in the liver, but the effect was more marked at 0.5% than at the 0.1% dietary level. Female animals fed the brominated oils had a slightly higher incidence of thyroid microfollicular hyperplasia than males.

The toxicity of brominated sesame oil and brominated soybean oil in miniature swine

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Miniature swine were fed brominated sesame oil at dietary levels of 0, 5, 25, 50 or 500 mg/kg of body weight for 17 weeks and brominated soybean oil at levels of 0, 5, 50 or 500 mg/kg of body weight for 28 weeks. Growth rate and food intake were decreased only at the high dose level in the brominated sesame oil study. In both studies, signs of lethargy and ataxia occurred in pigs fed the highest dose, and were probably due to a dose-related increase in serum bromine concentrations. Marked elevations in lactic dehydrogenase (LDH), serum glutamic-oxalacetic transaminase (SGOT) and serum glutamic-pyruvic transaminase (SGPT) values were seen at the highest dose level with both substances and these enzyme activities were increased at the 50 mg/kg dose level in the brominated sesame oil study. Histopathologic lesions were confined to animals given the highest dose level of either oil. Marked fatty degeneration of the hepatic plate cells and renal tubular epithelial cells were seen in both studies. In the brominated sesame oil study, neutral fat was moderately increased in the myocardium of the pigs fed 500 mg/kg. However, marked diffuse accumulation of LDH, marked diffuse fatty degeneration and focal degeneration, and/or necrosis of individual or small groups of cardiac muscle fibers were seen in the group fed brominated soybean oil at 500 mg/kg. A moderate to marked testicular atrophy was also observed in this group.

A dose-related accumulation of total and hexane-soluble bromine was observed in all tissues examined in both studies; the highest concentrations occurred in adipose tissue of the pigs given the highest dose level. Kidneys, livers, hearts and thyroids of these groups also contained large amounts of bromine. In pigs given the 50 mg/kg dose level, total and hexane-soluble bromine concentrations were higher in the brominated sesame oil study than in the longer brominated soybean oil study and may be responsible for the elevations in LDH, SGPT and SGOT activities in this group.

Toxicological effects induced by the chronic intake of brominated vegetable oils

BERNAL C ; BASILICO MZ ; LOMBARDO YB , ARCH LATINOAM NUTR; 36 (3). 1986 (RECD. 1987). 432-442

Normal Wistar rats fed during 105 days with standard laboratory chow, supplemented with 0.5g of **brominated vegetable oil** (olive, sunflower) per 100 g of diet showed a significant increase of triglyceride and cholesterol content in both heart and liver. *See also*: Potassium bromide http://en.wikipedia.org/wiki/Potassium_bromide