

Abstract

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Hypolipidemic effect of pantothenic acid derivatives in mice with hypothalamic obesity induced by aurothioglucose.

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OBJECTIVE: The hypolipidemic effects of pantothenic acid derivatives (phosphopantothenate, panthenol and pantethine) were studied in mice with hypothalamic obesity.

METHODS: Hypothalamic obesity in mice was induced by single injection of aurothioglucose (300 mg/kg body wt, i.p.). All the tested substances were administered during the last 10 days before decapitation (i.m., of dosage equivalent to 150 mg/kg body wt of phosphopantothenate).

RESULTS: The studied substances inhibited the weight gain of the animals with hypothalamic obesity over the last 10 days of the experiment. The treatment with aurothioglucose increased food intake and mean body weight, blood glucose level; insulin, serum total cholesterol, triglyceride, the sum of LDL + VLDL and LDL-cholesterol concentration; triglyceride and cholesterol fractions in the liver; triglyceride and FFA content as well as lipoprotein lipase activity in adipose tissue of experimental mice. The administration of the assay compounds lowered food intake and mean body weight, insulin and glucose levels and decreased the content of triglycerides, total cholesterol and cholesterol esters in serum and adipose tissue as well as raised the activity of lipoprotein lipase in adipose tissue and serum lipolytic activity in obese mice. Among the compounds studied the reverse effect of panthenol was especially pronounced.

CONCLUSION: The mechanism of hypolipidemic effects of pantothenic acid derivatives can be related to the reduced resistance to insulin and activation of lipolysis in serum and adipose tissue.

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