Abstract

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Effect of soluble endoglin on bile acids metabolism in the liver of high-fat diet-fed transgenic mice.

Diploma thesis

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Background:

Increased plasma concentrations of soluble endoglin (sEng) have been demonstrated in metabolic disorders such as hypercholesterolemia or insulin resistance. Metabolic diseases and inappropriate diet are the basis for the development of NASH (Non-alcoholic steatohepatitis). The aim of this diploma thesis was to determine how high plasma concentrations of sEng affect the bile acids metabolism in the liver of mice fed with high-fat diet, which induced NASH.

Methods:

Three-month-old male mice with CBAxC57BL/6J base (n = 8, in each group) were used in experiment: 1) "wild-type", which were fed a standard diet (WT_{chow}) for 6 months; 2) "wild-type" male mice fed a high fat diet (cholesterol, glucose and fructose) (WT_{HFD}); 3) males expressing human sEng ($sENG_{HFD}$) which were fed a high fat diet, glucose and fructose. *In vivo* kinetic study was performed to determine bile flow. Expression of transport proteins responsible for bile acids transport was performed at mRNA and protein level by qRT-PCR and Western blot.

Results:

High levels of soluble endoglin did not significantly affect BA homeostasis and expression of transport mechanisms in hepatocytes (Ntcp, Bsep, Mrp2, Mrp3, Mrp4). Decreased Bsep protein expression in both groups of mice on HFD diet could explain the reduction in bile flow observed in these animals.

Conclusions:

High levels of soluble endoglin did not significantly affect BA homeostasis during NASH.