SOLUBLE ENDOGLIN REGULATES ENTEROHEPATIC RECYCLING OF BILE ACIDS.

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Background: Increased plasma levels of soluble form of endoglin (sEng) were observed in patients with hypercholesterolemia, but sEng effects on cholesterol metabolism in liver have not been published so far. Therefore, the aim of the study was to describe the effects of sEng on the cholesterol turnover in liver. *Methods:* Nine-month-old transgenic male mice overexpressing human sEng on CBAxC57BL/6J background (sEng) and control mice underwent *in vivo* study with bile collection for 45 min. Cholesterol, and bile acids were determined in plasma, bile and stool. Expressions of enzymes, transport proteins and nuclear receptors responsible for cholesterol and bile acids homeostasis in the liver were assessed by qRT-PCR and Western blot. *Results:* Mice with high plasma sEng demonstrated decrease in plasma cholesterol levels. It was related to liver effects based on the upregulation of Sr-b1 and Ldlr proteins responsible for cholesterol uptake into hepatocytes, increased metabolism of cholesterol into bile acids through induced Cyp7a1 enzyme and increased biliary secretion of cholesterol via induction of Abcg8 transporter. Increased synthesis of bile acids induced bile acid-dependent bile flow in sEng mice together with significant increase in their plasma concentrations. *Conclusion:* Results of the study demonstrated that high plasma levels of sEng may modify cholesterol and bile acid plasma concentrations as a consequence of complex changes in the expression of responsible enzymes and transporters in liver.

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