スクアレンエポキシダーゼタンパク質の低下と スカベンジャーレセプタークラスＢタイプ１タンパク質の 増加は脳卒中易発症ラット中の 血清コレステロールレベルの低下に関与する

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Lower Squalene Epoxidase and Higher Scavenger Receptor Class B type 1 Protein Levels are involved in Reduced Serum Cholesterol Levels in Stroke-Prone Spontaneously Hypertensive Rats

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ABSTRACT: A lower serum cholesterol level was recently shown to be one of the causes of stroke in an epidemiological study. Spontaneously hypertensive rats stroke-prone (SHRSP) have lower serum cholesterol levels than normotensive Wistar-Kyoto rats (WKY). To elucidate the mechanisms responsible for the lower serum cholesterol levels in SHRSP, we determined whether the amounts of cholesterol biosynthetic enzymes or the receptor and transporter involved in cholesterol uptake and efflux in the liver were altered in SHRSP. When the mRNA levels of seven cholesterol biosynthetic enzymes were measured using real-time polymerase chain reaction (PCR), farnesyl pyrophosphate synthase and squalene epoxidase (SQE) levels in the liver of SHRSP were significantly lower than those in WKY. SQE protein levels were significantly reduced in tissues other than the brain of SHRSP. No significant differences were observed in low-density lipoprotein (LDL) receptor (uptake of serum LDL-cholesterol) or ATP-binding cassette transporter A1 (efflux of cholesterol from the liver/formation of high-density lipoprotein (HDL)) protein levels in the liver and testis between SHRSP and WKY, whereas scavenger receptor class B type 1 (SRB1: uptake of serum HDL-cholesterol) protein levels were higher in the livers of SHRSP. These results indicated that the lower protein levels of SQE and higher protein levels of SRB1 in the liver were involved in the reduced serum cholesterol levels in SHRSP.

抄録　本研究において我々は、肝臓中のスクアレンエポキシダーゼタンパク質の低下とスカベンジャーレセプタークラスＢタイプ１タンパク質の増加の両方が、脳卒中易発症ラットにおける血清コレステロールレベルの低下に関与していることを示した。