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**Objectives** Scavenger receptor class B type I (SR-BI) had been already proved in molecular level as the sole HDL receptor on cellular membrane. SR-BI plays an important role in reverse cholesterol transport (RCT). This study was designed to investigate the effects of atorvastatin on SR-BI expression in the liver of golden hamsters with diabetes mellitus.

**Methods** Thirty-three golden hamsters were included in this study. Six of them were randomly assigned to control group (n=6) and the others (n=27) were fed with high calorie and high fat diet and injected with streptozotocin (STZ, 30 mg/kg) to induce diabetic model. Twenty-three golden hamsters induced successfully were randomly divided into 3 groups: (1) diabetes and hyperlipidaemia control group (DHC group, n=7), (2) diabetes and hyperlipidaemia plus high dose atorvastatin group (atorvastatin 5 mg/kg/day for 7 days, DHH group, n=8), (3) diabetes and hyperlipidaemia plus low dose atorvastatin group (atorvastatin 2.5 mg/kg/day for 7 days, DHL group, n=8). Pathological and immunohistochemical change in the liver of golden hamsters were observed. RT-PCR and western blot were used to analyse SR-BI mRNA expression and SR-BI protein expression in the liver respectively.

**Results** In DHC group the liver was swelling with adipose degeneration. Adipose degeneration of the liver in DHL group and DHH group was improved. SR-BI mRNA and SR-BI protein expression in the liver were similar between DHC group and control group (p>0.05). SR-BI mRNA and SR-BI protein expression in the liver were significantly more in DHH group and DHL group than those in control group and DHC group (all p<0.05). SR-BI mRNA and SR-BI protein expression increased more in DHH group than those in DHL group (p<0.05).

**Conclusions** Atorvastatin could dose-dependently up-regulate SR-BI mRNA and SR-BI protein expression in the liver of golden hamsters with diabetes and hyperlipidaemia.