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The effects of tanshinone II-A on the mRNA expression of AS signaling pathway related gene in the liver of hyperlipidemia rats by PCR array technology

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Objective: To investigate the effect of Tanshinone II-A on the mRNA expression of AS signaling pathway related gene in the livers of hyperlipidemia rat by the method of PCR array.

Methods: SD rats (45 males) were randomly divided into three groups: control group, model group and treatment group. The rats in model group and treatment group were fed with high fat diet, while those in control group were fed with normal diet. The rats in treatment group were treated with Tanshinone II A (intraperitoneal injection), 20mg/kg /rat per day, and the rats in control group and model group were treated with normal saline (intraperitoneal injection). The content of TG, TC, HDL-C and LDL-C in serum were detected by automatic biochemical analyzer. The change of liver structure and lipid deposition were detected by oil red staining method. Total RNA was extracted from livers in each group. PCR array was used to Test the livers of AS signaling pathway related gene.

Result: The levels of TC and LDL-C increased while the levels of HDL-C decreased significantly in model group, compared with control group. Oil red staining indicated that obvious lipid deposition were formed in the liver cells in model rats, the levels of HDL-C increased, and TC, LDL-C levels decreased significantly in treatment group. DNA microarray showed that in model group the expression level of 49 (55.1%) genes (e.g. Apolipoprotein B, Apolipoprotein A-1, Low-density lipoprotein, etc.) increased by double or more compared to control group; in treatment group the expression level of 50 (56.2%) genes (e.g. Apolipoprotein B, Apolipoprotein A-1, Low-density lipoprotein, etc.) decreased by double or more compared to model group.

Conclusion: Tanshinone II A could play a role of influencing AS by regulating mRNA expression of AS related genes.

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