The changes in cell adhesion molecule expression in various pathological states in animal models.

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This rigorous work was focused on the study of atorvastatin effects in apoE/LDL-receptor deficient mice. The aim was to elucidate whether atrovastatin posses similar effects that are common in humans.

Female ApoE/LDL receptor-double-knockout mice at 8 weeks of age were randomly divided into 2 groups. The control group of animals (n=8) was fed with the atherogenic (western type) diet for another 8 weeks. The same atherogenic diet and treatment period was used in other two groups where atorvastatin was added to the diet at the dosage of 10 mg/kg per day. Biochemical analysis of blood cholesterol fractions, ELISA analysis of monocyte chemoattractant protein-1, vascular cell adhesion molecule-1 levels in blood, and stereological analysis of atherosclerotic plaque size in aortic sinus was performed.

The biochemical analysis showed that administration of 10 mg/kg of atorvastatin resulted in a mild decrease of blood cholesterol fractions. Moreover atorvastatin significantly increased the HDL levels. This mild positive influence on lipid parameters was accompanied by moderate anti-inflammatory effect which was manifested by a reduced level of MCP-1 in blood.

In conclusion apoE/LDL-receptor deficient mice could be used as animal model for the study of statins effect on atherogenesis. However the dose statin must be about 100 mg/kg/day. Moreover these mice could be used for the study of potential combinations of other hypolipidemic drugs with statins.