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ZINC SULPHATE REDUCES THE BODY WEIGHT OF APOE-KNOCKOUT MICE FED WITH HIGH FAT DIET

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Objectives The aim of the present work was to study the effect of zinc sulphate on body weight and perirenal fat weight of ApoE-knockout mice fed with high fat diet and explore its mechanism.

Methods Thirty male ApoE-deficient mice at 8 weeks of age were randomly divided into three groups, including atherosclerotic model group (n=10), low-dose group (n=10), high-dose group (n=10), and using 10 male wild-type C57BL/6J mice as the control group. All the mice were fed with high fat diet for 14 weeks. The control group and atherosclerotic model group mice drank deionised water freely, and both low-dose group and high-dose group mice drank 2.5mmol/l and 25mmol/l zinc sulphate respectively. The initial weight, the last weight, perirenal fat weight and zinc- α 2-glycoprotein mRNA level of perirenal fat were determined in this study.

Results The body weight, weight gain and perirenal fat weight of low-dose group and high-dose group mice significantly lower than the other two groups ($p<0.05$), the perirenal fat/weight index of low-dose group and high-dose group mice remarkably lower than the other two groups ($p<0.05$). The zinc- α 2-glycoprotein mRNA level of perirenal fat in low-dose group and high-dose group mice were significantly higher than atherosclerotic model group and control group mice ($p<0.05$). Furthermore, the zinc- α 2-glycoprotein mRNA level of perirenal fat had a positive correlation with concentration of zinc sulphate.

Conclusions These data suggest that zinc sulphate could markedly decrease the weight gain and perirenal fat weight in ApoE-knockout mice fed with high fat diet. And the underlying mechanisms seem to be related with zinc- α 2-glycoprotein.