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Taurine attenuates the vascular calcification and L-arginine/NO pathway impairement induced by vi

AIM To investigate the characteristics of L arginine/NO pathway in vascular calcification and the effect of administration of extraneous taurine on the metablism of arginine/NO pathway in vascular calcification. METHODS The vascular calcification model was produced by vitamin D 3 plus nicotine. Vascular calcium content, activity of alkaline phosphatase(ALP), plasma arginine and nitrite content, vascular cGMP, vascular NOS activity and arginine transport were measured. RESULTS The vascular calcium content and the ALP activity increased 6 6 times and 12 6 times in VDN rats(P <0 01), respectively compared with control group, and plasma NO production, vascular cGMP content were obviously decreased (P <0 01), the activity of total NOS was increased, mainly increased constitutive NOS(P <0 01). However, the L arginine transport of vascular was obviously decreased (P <0 01). After administrating taurine in VDN rats, the vascular calcium content and ALP activity were decreased (P <0 01), the production of plasma NO and vascular cGMP content were increased (P <0 01), and the L arginine transport of vascular smooth muscle and endothelia obviously enhanced (+79 4% and 55 1%, all P values <0 01), compared with VDN group. CONCLUSION Taurine may attenuate the vascular calcification and improve the disturbance of L arginine/NOS/NO/cGMP pathway in rats induced by Vit D 3 plus nicotine. Thus, it appears that there is a potential clinical value of protection and treatment in taurine to the vascular calcification of atherosclerosis and other cardiovascular diseases.

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