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EFFECTS OF TELMISARTAN AND PYRIDOXAMINE ON VASCULAR SMOOTH MUSCLE CELLS FROM RAT ABDOMINAL AORTA VASCULAR

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Objective To investigate the effects of telmisartan and pyridoxamine on vascular smooth muscle cells (VSMCs) proliferation and apoptosis with abdominal aorta vascular remodelling in spontaneously hypertensive rat (SHR).

Methods SHR randomly received hypertensive, telmisartan (6 mg/kg/d), pyridoxamine (200 mg/kg/d) or combination therapy (telmisartan 6 mg/kg/d, pyridoxamine 200 mg/kg/d). Drug treatment lasted for 16 weeks. Wistar-Kyoto (WKY) as control. The systolic blood pressure (SBP) of rat was measured before and after experimentation every weeks. The serum advanced glycation end-products (AGEs) were detected by competitive ELISA. The serum super oxide dismutase (SOD), nitric oxide (NO) were measured chemical method. The abdominal aorta were assessed by image analysis in HE stained sections. The VSMCs apoptosis and proliferation in abdominal aorta were detected with in situ end labelling technique and proliferating cell nuclear antigen (PCNA) immunohistochemistry staining, respectively.

Results The levels of SBP were significantly lower in telmisartan and combination therapy treated SHR than that in hypertensive rats. There was no significant difference between pyridoxamine and WKY ($p>0.05$). The activity of SOD and NO were significantly higher and AGEs significantly lower in telmisartan, pyridoxamine and combination therapy treated SHR than that in hypertensive rats ($p<0.01$). The telmisartan, pyridoxamine and combination therapy can significantly inhibit the PCNA expression and significantly enhanced the apoptosis value in abdominal aorta ($p<0.01$). The effect of combined treatment have been showed significant difference from telmisartan and pyridoxamine ($p<0.05$).

Conclusion Telmisartan and pyridoxamine could partial synergistically improved the blood remodelling associated with attenuation in oxidative stress status and improve the VSMCs unbalance relationship of proliferation and apoptosis in SHR

abdominal aorta. Telmisartan was also associated with significant reducing blood pressure.