Increased Na, K, Cl cotransporter and Na, K-ATPase activity of vascular tissue in two-kidney Goldblatt hypertension

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The properties of the Na/K pump and Na, K, Cl cotransporter were studied in vascular tissue of two-kidney Goldblatt hypertensive rats. These transport systems were measured as ouabain-sensitive and bumetanide-sensitive 86Rb/K uptake in aortic rings, left ventricular muscle and soleus skeletal muscle fibers of control and hypertensive Sprague-Dawley rats. A dramatic increment in Na/K pump activity was observed in intact aortic rings from the hypertensive group. The same was true for the Na, K, Cl cotransporter. The transport parameters related to the left ventricular muscle and soleus skeletal muscle were not significantly altered in the hypertensive rats. Measurements of the catalytic isoforms of the Na+, K+-ATPase in the aortic rings indicated that both isoforms (?1 and ?2) were elevated in the same proportion in the hypertensive rats. The results also indicate that the endothelium plays an important role in both transport systems: in the absence of endothelium, a much lower 86Rb/K up