Selective increase in cardiac IGF-1 in a rat model of ventricular hypertrophy

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There is evidence that insulin-like growth factor-1 (IGF-1) plays a role in the development of left ventricular hypertrophy, but it is uncertain whether cardiac IGP-1 changes before or after hypertension is established, and whether circulating IGF-1 are involved in cardiac hypertrophy. We have investigated changes in circulating and left ventricular IGF-1 and in the expression of the IGF-1 gene in the left ventricles of rats during the development of hypertensive left ventricular hypertrophy (Goldblatt model; 2 kidney-1 clamped). Our results show that the left ventricular contents of IGF-1 and its mRNA were increased at one and four weeks of hypertension and hypertrophy, and that both returned to control values after nine weeks. These changes were unrelated to the seric concentration of IGF-1 in the blood. These results show that local rather than circulating IGF-1 levels contributed to the development of renovascular hypertensive left ventricular hypertrophy.