Verapamil in Arterial Hypertension with Renal Disease

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Dear Sir,

Calcium antagonist drugs have been proved effective in the treatment of essential hypertension [1]. However, information regarding the hypotensive effect of these drugs in hypertensive patients with chronic renal disease is scanty; recently two papers appeared concerning the use of nifedipine in these patients [2,3]. We report our experience on the renal and antihypertensive effects of the calcium entry blocker verapamil in a slow-release preparation (Isoptin Retard®; Knoll AG) in a group of patients with hypertension secondary to renal parenchymal disease. We investigated 9 patients (6 males, 3 females). The mean age was 44 years (range 24–55 years). The diagnosis of renal disease was chronic interstitial nephritis in 6 cases, polycystic kidney disease in 2, and chronic glomerulonephritis in 1. Six had a creatinine clearance below 80 ml/min (serum creatinine ranging from 1.5 to 3.4 mg/dl).

After 2 weeks of placebo washout, the patients received verapamil retard for 4 weeks, starting with 120 mg twice daily. If the diastolic blood pressure was > 95 mm Hg after the first 2 weeks, verapamil retard was increased to 240 mg twice daily. After the placebo period and the first 2 weeks of treatment, effective renal plasma flow was evaluated, as well as the ¹³¹I-hippuran clearance [4].

The main results are shown in table I; in 4 cases the dosage of verapamil was increased to 480 mg/day. The heart rate did not change significantly during the study. The glomerular filtration rate, as assessed by the endogenous creatinine clearance, was not significantly modified, even in patients with impaired renal function. The drug was well tolerated: no adverse effect emerged on atrioventricular conduction and cardiac function; only 2 patients complained of mild constipation.

Our results demonstrate that verapamil exerts a good antihypertensive effect, even in mild to moderate hypertension secondary to renal parenchymal disease. Moreover, in spite of blood pressure reduction, no adverse effect on renal hemodynamics was observed: in fact the renal plasma flow was maintained or slightly increased in

Table I. Antihypertensive and renal effects of verapamil retard (mean ± SE)

Placebo Verapamil retard

2 weeks

4 weeks

165 ± 5	151 ± 6*	142 ± 6**
113 ± 3	96 ± 3**	93 ± 4**
160 ± 5	148 ± 6*	141 ± 5**
112 ± 4	102 ± 4	98 ± 4*
246 ± 27	268 ± 29	

Supine SBP, mm Hg Supine DBP, mm Hg Upright SBP, mm Hg Upright DBP, mm Hg ERPF, ml/min/1.73 m² RVR, ml/min/1.73 mV/mm Hg 0.60 ± 0.07 0.49 ± 0.07** -

SBP= Systolic blood pressure; DBP = diastolic blood pressure; ERPF = effective renal plasma flow; RVR, renal vascular resistance.

*p < 0.05; **p > 0.01 (Wilcoxon signed rank test; comparison with placebo).

all patients, and the renal vascular resistance significantly (p < 0.01) fell after treatment with verapamil.

Our results and those reported by other authors [2, 3] provide also indirect evidence for a role of calcium in the pathogenesis of vasoconstriction and hypertension in patients with renal disease.

References

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