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Efonidipine Hydrochloride: A Dual Blocker of L- and T-Type Ca^{2+} Channels

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ABSTRACT

T-type Ca^{2+} channels have properties different from those of the L-type and are involved in cardiac pacemaking and regulation of blood flow, but not in myocardial contraction. Efonidipine is an antihypertensive and antianginal drug with dihydropyridine structure that was recently found to block both L- and T-type Ca^{2+} channels. In isolated myocardial and vascular preparations, efonidipine has potent negative chronotropic and vasodilator effects but only a weak negative inotropic effect. In experimental animals and patients, reduction of blood pressure by the drug was accompanied by no or minimum reflex tachycardia leading to improvement of myocardial oxygen balance and maintenance of cardiac output. Efonidipine increased glomerular filtration rate without increasing intraglomerular pressure. By relaxing both the afferent and efferent arterioles, efonidipine markedly reduced proteinuria. Thus, efonidipine, an L- and T-type dual Ca^{2+} channel blocker, appears to have an ideal profile as an antihypertensive and antianginal drug with organ-protective effects in the heart and kidney.