Successful Treatment of the Crisis of Scleroderma with Enalapril Maleate (MK-421)

KAZUYA OGAWA, TAKESHI KUROSE, TAKASHI KUWAHARA, KAICHIRO ISHIKAWA, MASATO MATSUNAGA,* YASUYUKI NAKAMURA, CHUN HO PAK, AKIRA HARA † and CHUICHI KAWAI

The Third Division, Department of Internal Medicine, Faculty of Medicine, and *College of Medical Technology, Kyoto University, Shogoin, Sakyo-ku, Kyoto 606, and † the First Department of Internal Medicine, Fukui Medical School, Matsuoka-cho, Yoshida-gun, Fukui 910-11

OGAWA, K., KUROSE, T., KUWAHARA, T., ISHIKAWA, K., MATSUNAGA, M., NAKAMURA, Y., PAK, C.H., HARA, A. and KAWAI, C. Successful Treatment of the Crisis of Scleroderma by Enalapril Maleate (MK-421). Tohoku J. exp. Med., 1984, 144 (4), 433-434 — A 74-year-old man has been known to have scleroderma for 5 years. Two months before the hospitalization, his blood pressure was rapidly elevated, and progressive renal impairment and ulcerations of the fingers manifested. Then he was diagnosed to have a crisis of scleroderma. The treatment with a new long-acting angiotensin I converting enzyme inhibitor, enalapril maleate (MK-421), normalized the blood pressure and protected the progress of renal impairment without side effects.

An angiotensin I converting enzyme inhibitor (CEI), captopril (CP), lowered blood pressure (BP) dramatically and produced rapid symptomatic improvement, especially when the treatment was started early enough in the course of scleroderma crisis (SC) (Lopez-Ovejero et al. 1979; Whitman III et al. 1982). While CP is no doubt a very effective drug, its introduction to general clinical use is hampered by some potentially hazardous side effects; such as rash, fever, loss of taste, leukopenia; probably due to the sulfhydryl group in its structure (Heel et al. 1980). Recently, a new CEI, enalapril maleate (MK-421), was synthesized, and consists of substituted N-carboxymethylidipeptides with no sulphydryl group (Pachett et al. 1980). We recently encountered a patient whose renal crisis of scleroderma was treated successfully with MK-421.

The patient is a 74-year-old man who had been known to have scleroderma since 1978. In spite of the prolonged conventional treatment with prednisolone and diltiazem the BP rose rapidly since August 1983, and reached 240/120 mmHg in September. Progressive renal impairment developed, glomerular filtration rate (GFR) decreased from 56 ml/min to 29 ml/min, renal plasma flow (RPF) also decreased from 295 ml/min to 80 ml/min, serum creatinine level increased from 0.8 mg/100 ml to 1.9 mg/100 ml, and blood urea nitrogen increased from 14 mg/dl to 32 mg/dl. Then, the patient was admitted to Kyoto University.
Hospital. The examinations revealed typical skin changes of scleroderma with ulcerations at the tip of fingers. The BP was 214/126 mmHg, plasma renin activity and plasma aldosterone concentration at supine resting state were 37.1 ngAI/ml/hr (normal range 0.5-2.1) and 16.0 ng/100 ml (4.4-12.4), respectively. MK-421 administration (2.5-5.0 mg/day) normalized BP and improved the skin change without side effects (Fig. 1). Radioisotope renal function test showed no significant changes in GFR and RPF after the treatment. Thus CEI, especially, the long acting and sulfhydryl group free MK-421, can be an effective antihypertensive therapy in scleroderma. In some patients with scleroderma, however, progression of renal failure continued and death occurred despite BP control with captopril (Whitman III et al. 1982). Though progression of renal failure has not been detected in our case, long term follow-up and further studies on MK-421 efficacy will be awaited with considerable interest.

Enalapril maleate was supplied by Nippon Merck Banyu, Co., Ltd.

References


