Renin-Angiotensin-Aldosterone System in Cyclosporin A-Treated Renal Allograft Recipients

B.	Brigitte	Stanek
J.	Josef	Kovarik
W.	Werner	Buschbeck
K.	Karl	Silberbauer
W.	Wulf	Pinggera

Brigitte Stanek, II. Medizinische Universitätsklinik, Garnisonsgasse 13, A-1090 Wien (Austria)

Dear Sir,

There is still ongoing debate whether hypertension arising in renal allograft recipients on cyclosporin A (Cy-A) relates to stimulation of the renin-angiotensin-aldosterone system (RAAS).

In animal experiments Cy-A has been demonstrated to enhance renin content and release from renal cortical slices and to increase plasma renin activity (PRA) [1–3]. In contrast, however, low or low-normal PRA was found in 5 of 7 hypertensive patients treated with Cy-A for renal transplantation [4].

We did multiple measurements of PRA and aldosterone in 11 Cy-A-treated renal allograft recipients (table I). 10 of 11 patients were hypertensive and successfully treated with labetalol, nifedipine, and dihydralazine. We could not find changes in PRA and aldosterone up to 3 weeks after transplantation.

Table I. Plasma renin activity and aldosterone in cyclosporin-treated renal allograft recipients (means $\pm$ SEM from 11 patients)

Weeks	1	2	3
after transplantation:			
Plasma renin activity,			
0.31 $\pm$ 0.05	0.30 $\pm$ 0.03	0.32 $\pm$ 0.05	
ng/ml/h			
Plasma aldosterone,			
114 $\pm$ 27	72 $\pm$ 18		
pg/ml			

Plasma creatinine,
mg/100 ml

Blood pressure, mm Hg

weeks after initiation of Cy-A therapy. Although therapy with β -blockers has to be taken into account, there does not seem to be profound stimulation of basal PRA in our patients shortly after initiation of Cy-A therapy.

May be pharmacological stimulation of renin release by inhibiting angiotensin-converting enzyme will give more insight into the activity of the RAAS in renal allograft recipients. This

approach could also help to single out those patients whose posttransplantation hypertension might be improved by a converting enzyme inhibitor.

References

Baxter, C.R.; Duggin, G.G.; Willis, N.S.; Hall, B.M.; Horvath, J.S.; Tiller, D.J.: Cyclosporin A-induced increases in renin storage and release. *Res. Commun. chem. Pathol. Pharmacol.* 37: 305–312 (1982).

Siegl, H.; Ryffel, B.: Effect of cyclosporin on renin-angiotensin-aldosterone system. *Lancet* ii: 1274 (1982).

Baxter

C.R.; Duggin

G.G.; Hall

B.M.; Horvath

J.S.; Tiller

D.J.: Stimulation of renin release from rat renal cortical slices by cyclosporin A. *Res. Commun. chem. Pathol. Pharmacol.* 43: 417–423 (1984).

Adu

D.; Turney

J.; Michael

J.; McMaster

P.: Hyperkalaemia in cyclosporin-treated renal allograft recipients. *Lancet* ii: 370–372 (1983).