

Letter

Does size matter?

Sir,

In the November 2006 issue of JASN, Opelz *et al.* published their analysis of the association of ACEI/ARB with patient and graft survival after renal transplantation utilizing the CTS registry [1]. In contrast to our study, published in JASN in March 2006, Opelz and colleagues reported that they failed to find such an association [2].

How can that be?

- (i) There are differences in the group definitions and inclusion criteria between the two studies. While we included all patients transplanted between 1990 and 2003 with a functioning graft 3 months after transplantation, Opelz *et al.* used only patients transplanted between 1995 and 2004, with functioning graft 1 year after transplantation.
- (ii) There are differences in the way ACEI/ARB enters the analysis. While we used ACEI/ARB intake as a time-dependent variable, and *only for graphical illustration* divided our patients into those who had received ACEI/ARB treatment after transplantation and those who had never received such treatment, Opelz *et al.* used ACEI/ARB in a fixed manner, comparing groups based on ACEI/ARB treatment at the time of 1 year after transplantation. In order to compare these results to ours, we performed a re-analysis of our database, including only patients transplanted from 1995 on and only those who had a functioning graft 1 year after transplantation. Then we used the same group definition as Opelz and colleagues and compared our new results to their and our published ones. We obtained the following survival curves (restricted to 6 years of follow-up, as in the publication of Opelz *et al.*) (Figure 1).

At 6 years of follow-up, the survival rates are comparable (Table 1).

We computed the crude (unadjusted for confounding) hazard ratio (HR) for ACEI/ARB use with the reduced data base, for graft and patient survival. These hazard ratio estimates compare to the results based on time-varying entry of ACEI/ARB use are displayed in Table 2.

- (i) The most striking difference between the two analyses lies in the way information on ACEI/ARB treatment was obtained. In the study of Opelz *et al.*, a questionnaire was sent out, with a return rate of 107 out of 299 participating centres. Their publication does not provide information on how completely the data was collected within those 107 centres. By contrast, we used data bases from the general public Austrian Sickness Funds and direct entry from patient charts.

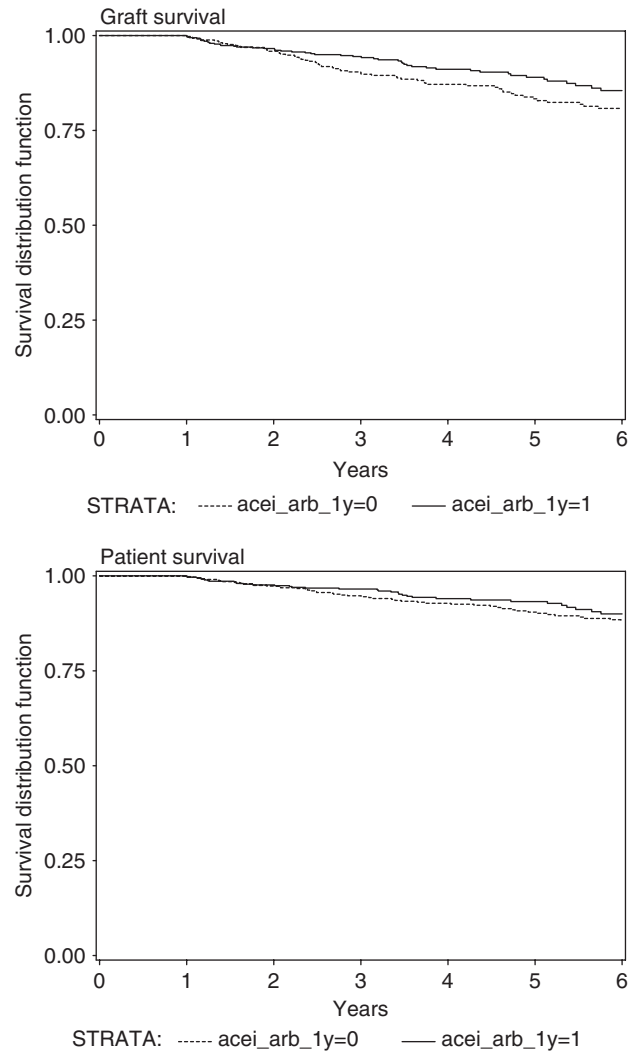


Fig. 1. Outcomes by ACEI/ARB use.

Table 1. Survival rate at 6 years

Group	Graft survival		Patient survival	
	Our data	Opelz <i>et al.</i>	Ourdata	Opelz <i>et al.</i>
ACEI/ARB	85.5%	82.5%	90.0%	91.1%
No ACEI/ARB	80.8%	83.7%	88.0%	92.0%

**Table 2.** Cox proportional hazard regression models

Mode of analysis	HR (95% confidence interval)	
	Graft survival	Patient survival
Time-varying (Heinze <i>et al.</i> )	0.76 (0.64–0.90)	0.70 (0.58–0.86)
Fixed at 1 year (Opelz <i>et al.</i> )	0.70 (0.48–1.02)	0.80 (0.52–1.24)

(ii) Furthermore, we included the confounding variables in a time-varying manner. Different strategies to identify confounding variables yielded virtually the same results. Finally, we did not explicitly recommend ACEI/ARB use, we rather encouraged the scientific community to test a potentially causal relationship between ACEI/ARB use and increased survival in a randomized controlled clinical trial.

*Conflict of interest statement.* None declared.

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1. Opelz G, Zeier M, Laux G, Morath C, Dohler B. No improvement of patient or graft survival in transplant recipients treated with angiotensin-converting enzyme inhibitors or angiotensin II type 1 receptor blockers: a collaborative transplant study report. *J Am Soc Nephrol* 2006; 17: 3257–3262
2. Heinze G, Mitterbauer C, Regele H *et al.* Angiotensin-converting enzyme inhibitor or angiotensin II type 1 receptor antagonist therapy is associated with prolonged patient and graft survival after renal transplantation. *J Am Soc Nephrol* 2006; 17: 889–899

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