

Provision of Highly Specialized Aftercare by the Transplant Center Strongly Improves Patient and Allograft Survival in Long-term Follow-up After Kidney Transplantation

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INTRODUCTION

Despite rapid medical advancements in the field of transplantation over the last decades, mean kidney allograft survival only slowly improves. Here, long-term success of organ transplantation depends to a great extent on an interdisciplinary aftercare that particularly includes collaboration of local nephrologists, local hospitals and the transplant center provided aftercare with its in- and out-patient clinic. If and to what extent a highly specialized and experienced aftercare of kidney transplant recipients (KTRs) by the transplant centers impacts patient and allograft outcomes in long-term follow-up remains unknown. We hypothesized that aftercare of KTRs by transplant centers compared to local nephrologists only ultimately improves patient and allograft survival.

PATIENTS AND METHODS

We analyzed 1171 recipients of a first kidney allograft at our center from 1998 to 2015. Both, deceased donor and living donor transplantation were included. Patients undergoing kidney retransplantation or kidney transplantation after previous solid organ transplantation were not included. Only KTRs who survived the first posttransplant year and showed stable allograft function at +1 year posttransplantation were included. 800 KTRs, who were treated quarterly in our transplant center. 371 KTRs, who were followed by local nephrologists or general practitioners only. Data on KTRs who were followed by local nephrologists only were provided by these local nephrologists. In addition, KTRs that make no use of the transplant center provided aftercare, were assessed by a questionnaire-based survey with respect to allograft survival and their reasons not to make use of it. We tried to address the following questions: (1) What factors discourage KTRs to make use of the transplant center provided aftercare?; (2) What impact does transplant center provided aftercare have on patient survival?; and (3) What impact does transplant center provided aftercare have on death-censored allograft survival?

	Aftercare by Transplant Center (n=800)	Aftercare by Dialysis Center (n=371)	P value
Age, yr *	58 (18-78)	57 (19-76)	0.765
Male sex, n (%)	496 (62)	232 (63)	0.897
Living donation, n (%)	256 (32)	80 (22)	<0.001*
Distance to transplant center, km*	35 (1-392)	139 (2-390)	<0.001*
<10 kilometers	159 (20)	33 (9)	<0.001*
10-100 kilometers	331 (41)	109 (29)	
>100 kilometres	310 (39)	229 (62)	
Travel to transplant center, min*	48 (2-229)	94 (5-225)	<0.001*
<30 minutes	255 (32)	63 (17)	<0.001*
30-60 minutes	195 (24)	70 (19)	
>60 minutes	350 (44)	238 (64)	
Time of ET registration, mo*	7 (0-189)	12 (0-139)	<0.001*
before dialysis	134 (17)	33 (9)	<0.001*
<12 months after dialysis start	405 (51)	153 (41)	
>12 months after dialysis start	261 (33)	185 (50)	
Initial hospitalisation, days*	19 (6-189)	24 (6-72)	0.005*
Aftercare in transplant center, mo*	-	25 (0-118)	-
<12 months	-	128 (35)	-
1-5 years	-	167 (45)	-
>5 years	-	76 (20)	-

RESULTS

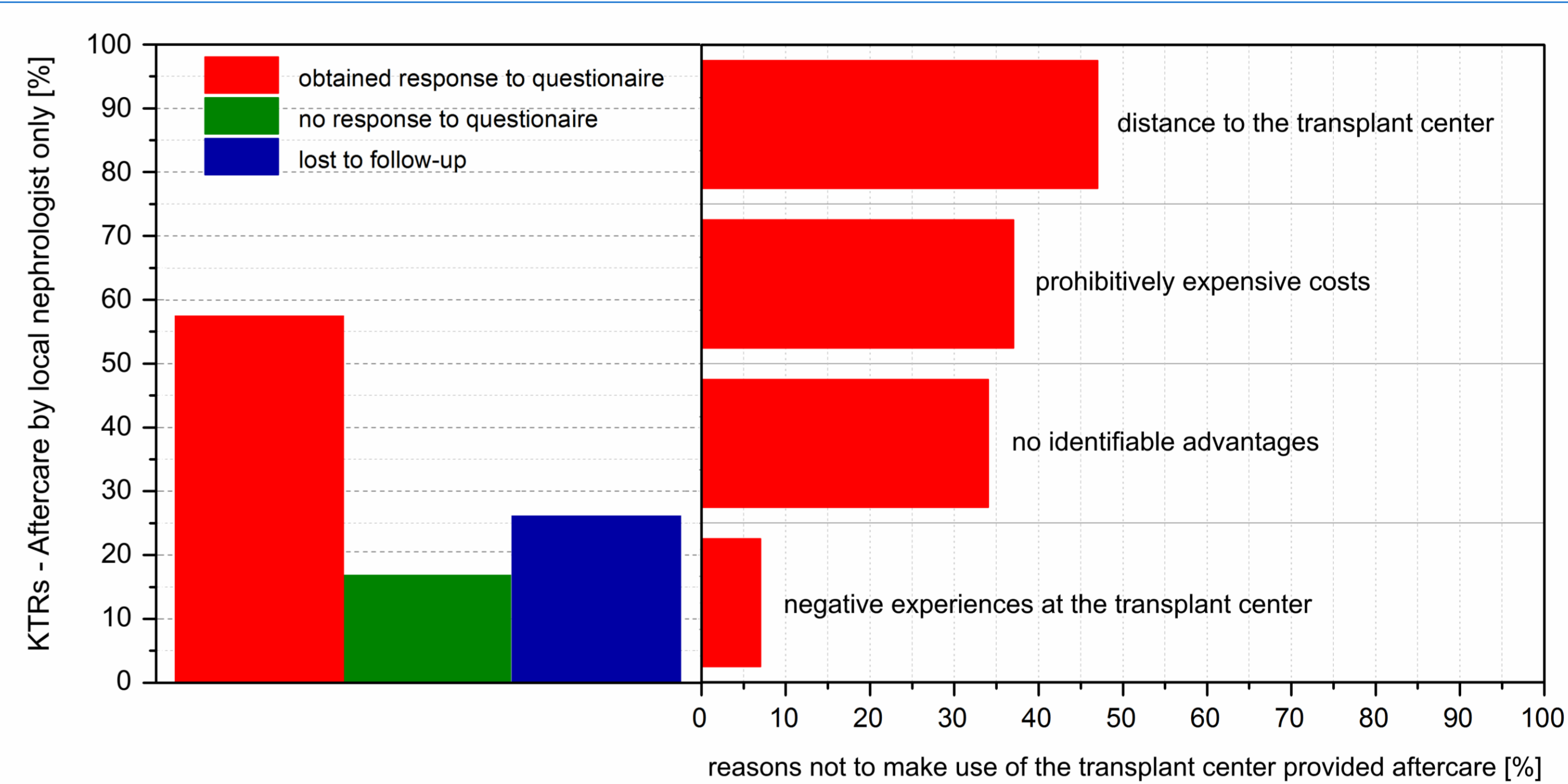
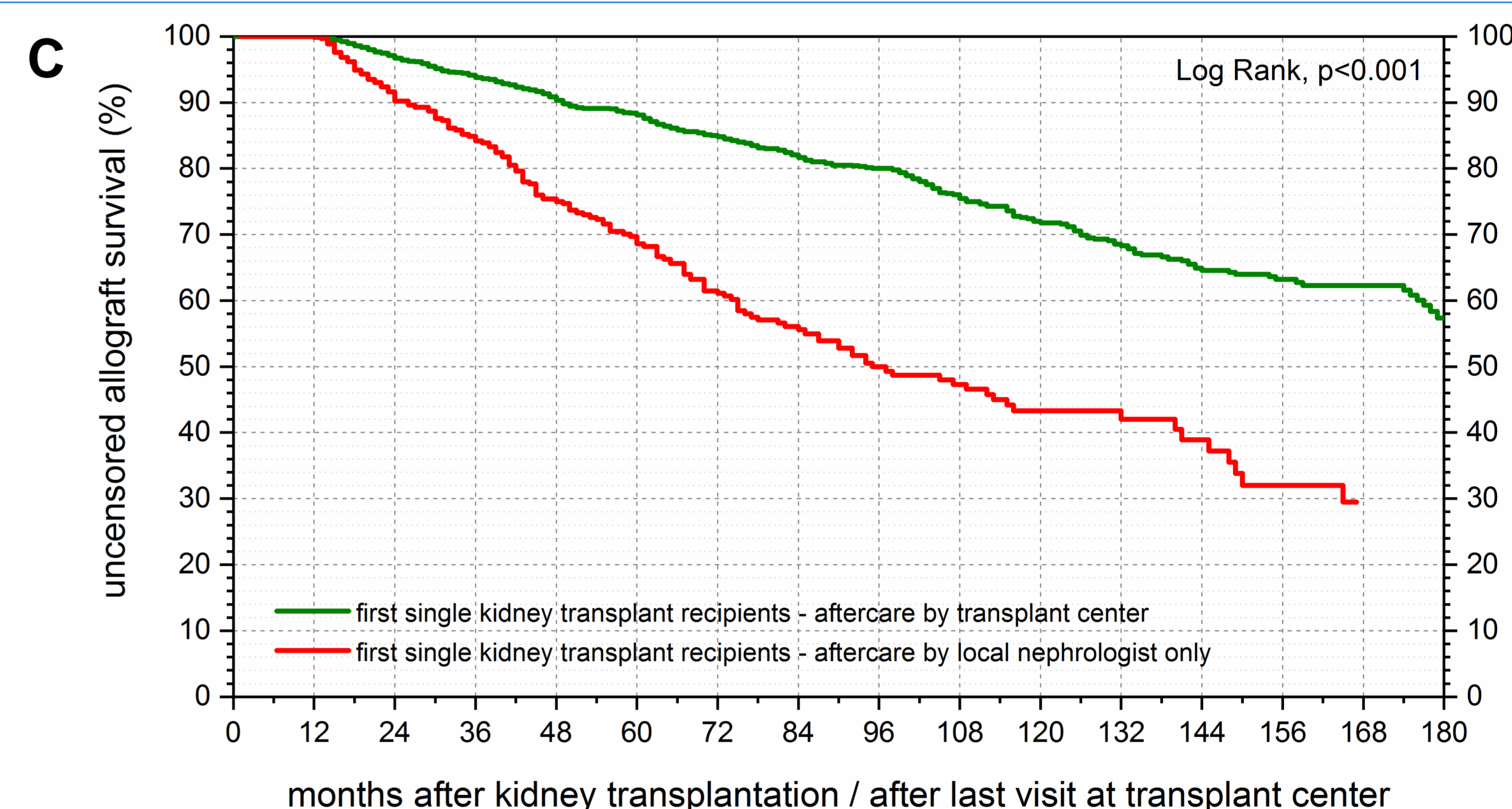
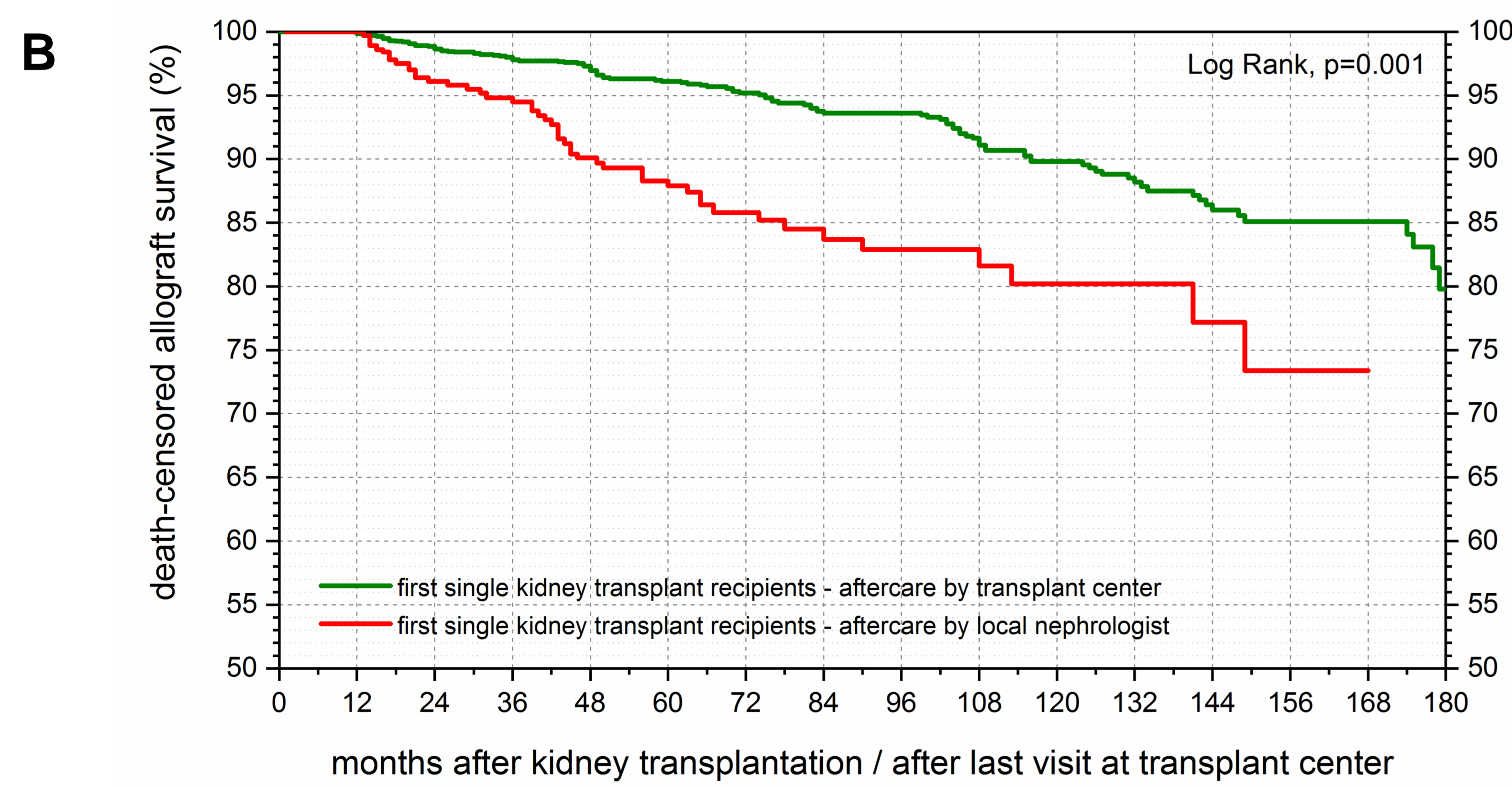
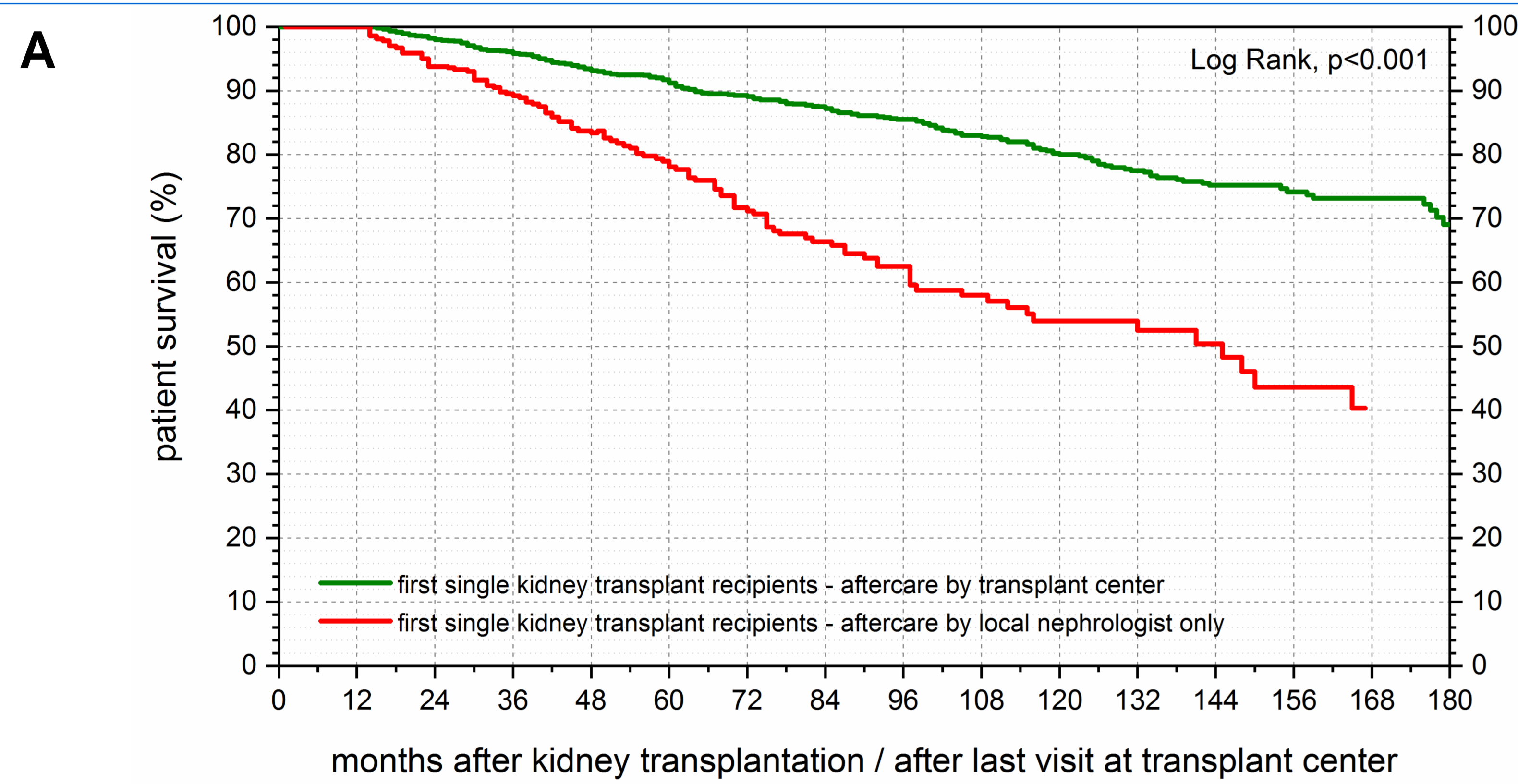


Figure 1A-C KTRs followed in our transplant center showed a significantly better (A) patient survival, (B) death-censored allograft survival, and (C) uncensored allograft survival compared to those KTRs followed by local nephrologists. We used Cox regression with the last visit in the transplant center as the time-dependent covariate to compare patient survival, death-censored allograft survival and uncensored allograft survival between both groups.

Figure 2: All KTRs that were followed by local nephrologists only were assessed by a questionnaire-based survey about their reasons not to make use of the transplant center provided aftercare. Long distance to the transplant center and the associated expensive travel costs were considered the most important reasons not to make use of the transplant center provided aftercare.

CONCLUSIONS

- Our data suggest that factors that are associated with strong adherence to the transplant center include living donation, shorter distance and travel to the transplant center, early registration to the waiting list, and shorter initial hospital stay.
- Our data strongly indicate that provision of aftercare by the transplant center is highly associated with superior patient and allograft survival in long-term follow-up. The observed wide differences may be attributed to highly specialized immunological screening protocols with careful and critical guidance of immunosuppression, infectious screening protocols, more critical questioning of creeping creatinine and more comprehensive medical care of common comorbid conditions.
- Our data highly suggest that despite long distances, transplant centers, local nephrologists, and health insurances must encourage patients to make use of transplant center provided aftercare.

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There are no relevant conflicts of interest to disclose.

