

INTRODUCTION

Uric acid (UA)

- "Waste product" of purine metabolism.
- Healthy kidney returns up to 90% of it to the blood stream.
- a role of UA as a powerful scavenger of ROS in ECF.

Vast literature on the epidemiology of cardiovascular diseases

- hyperuricemia is strongly associated with poor clinical outcomes.
- Its antioxidant function is very limited.

Thus, the effect of UA in patient with chronic allograft dysfunction has remained high controversial.

METHODS

Study Design: retrospective cohort.

Setting & Participants:

- All 281 KT recipients who underwent kidney transplantation at Hanyang University Hospital, during the 10-year period between Jan 1, 1991 and Dec 31, 2000.
- Clinical and laboratory data were collected at 1 year after KT as the baseline values.

Predictor: serum UA levels at 1 year after KT.

Outcomes: Dialysis-free allograft survival.

RESULTS

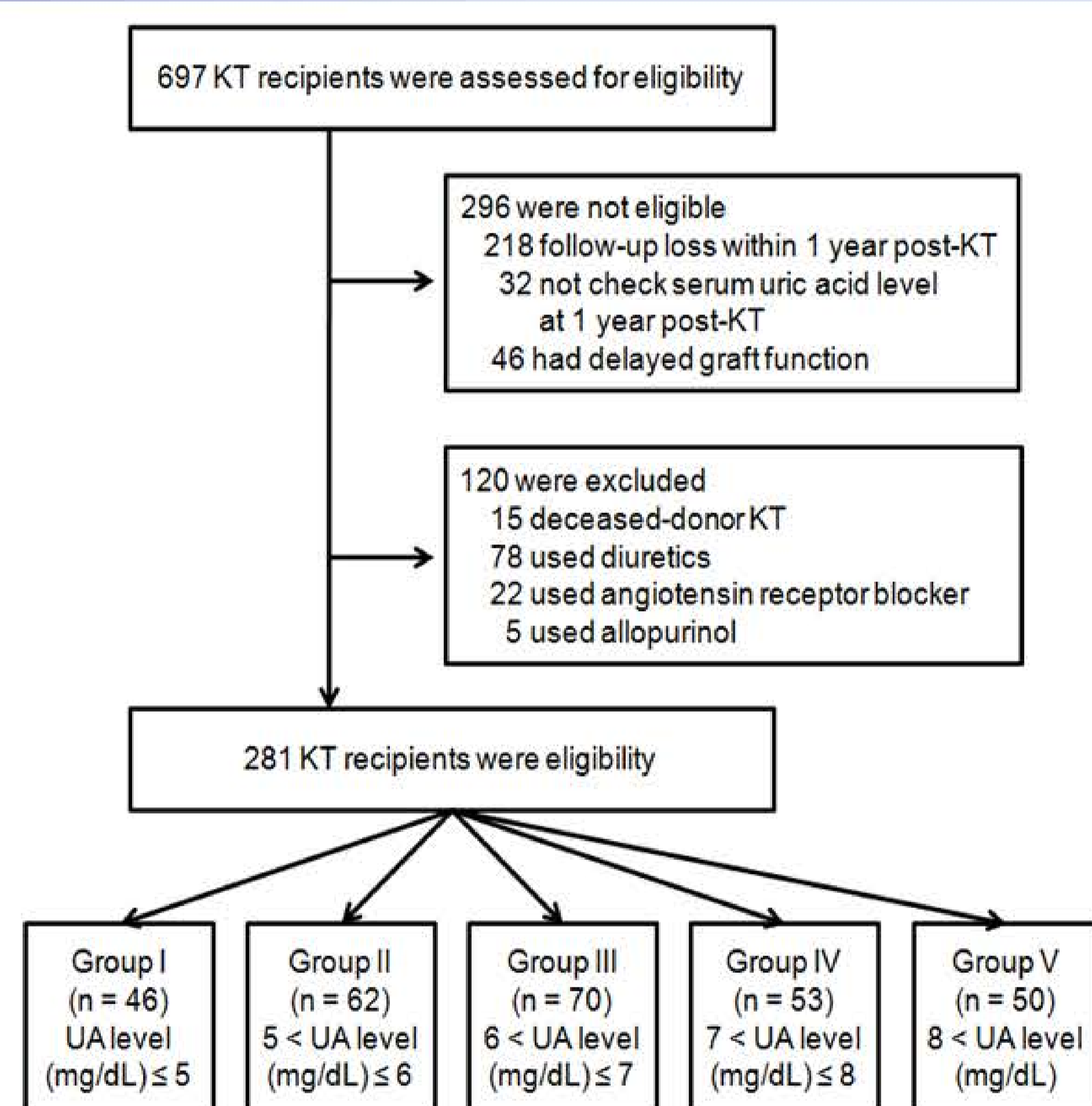


Figure 1. Flow chart of the study group enrollment for serum UA level at 1 year post-KT.

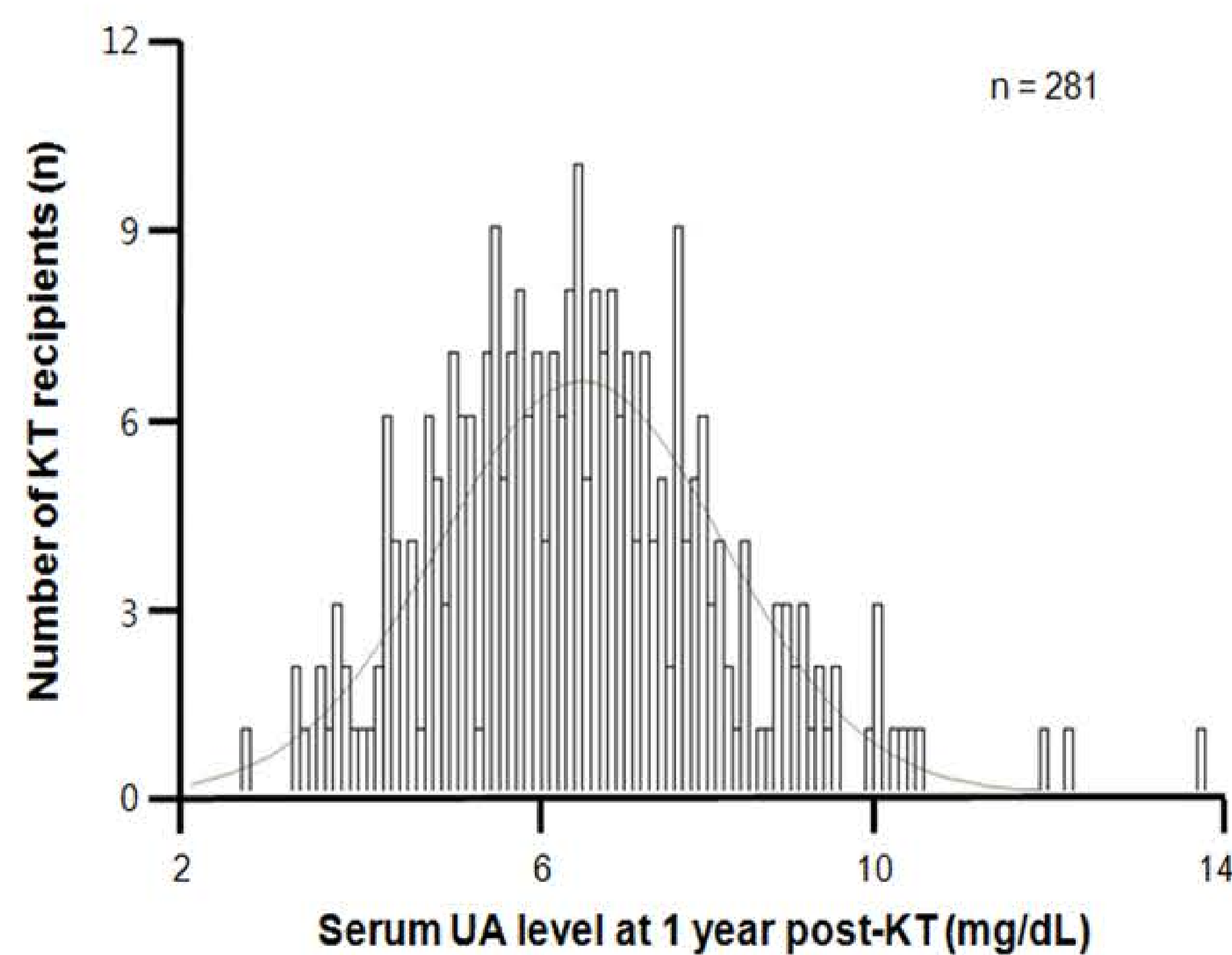


Figure 2. Frequency distribution of serum UA levels in KT recipients. UA concentration at 1 year post-KT follows a normal distribution (Kolmogorov-Smirnov test: D = 0.0508; P = 0.078).

Table 1. Baseline characteristics KT recipients by serum UA level

Parameters	Group I (n = 46)	Group II (n = 62)	Group III (n = 70)	Group IV (n = 53)	Group V (n = 50)	p value
Age (years)	35 ± 11	40 ± 11	40 ± 11	40 ± 11	36 ± 10	0.0430
Male (%)	39 (85)	46 (74)	48 (69)	32 (60)	35 (70)	0.0866
Diabetics (%)	1 (2)	2 (3)	6 (9)	3 (6)	1 (2)	0.3521
eGFR (mL/min/1.73 m ²)	81 ± 22	71 ± 24	60 ± 19	52 ± 18	49 ± 1	<0.0001
SBP (mmHg)	122 ± 14	123 ± 12	122 ± 13	121 ± 16	121 ± 15	0.7866
Hemoglobin (mg/dL)	12.6 ± 1.8	13.4 ± 2.3	12.8 ± 1.8	13.0 ± 2.3	13.2 ± 2.3	0.3257
HLA-DR match ≥ 1 (%)	40 (87)	58 (94)	66 (94)	51 (96)	47 (94)	0.4788
HLA-AB matching (%)						0.6197
≤ 1	17 (37)	19 (31)	24 (34)	21 (40)	20 (40)	
≥ 2	29 (63)	43 (69)	46 (66)	32 (60)	30 (60)	
Episode of AR (%)	4 (9)	7 (11)	8 (11)	3 (6)	8 (16)	0.5347
CsA use (%)	44 (96)	52 (84)	64 (91)	48 (91)	42 (84)	0.3830
Se CsA level (mg/mL)	115 ± 40	100 ± 20	105 ± 25	104 ± 22	108 ± 20	0.1658
MMF use (%)	26 (57)	32 (52)	40 (57)	24 (45)	26 (52)	0.5582
Proteinuria (%)	14 (30)	7 (11)	7 (10)	8 (15)	9 (18)	0.0395

eGFR, estimated glomerular filtration rate; SBP, systolic blood pressure; HLA, human leukocyte antigen; AR, acute rejection; CsA, cyclosporin A; MMF, human leukocyte antigen.

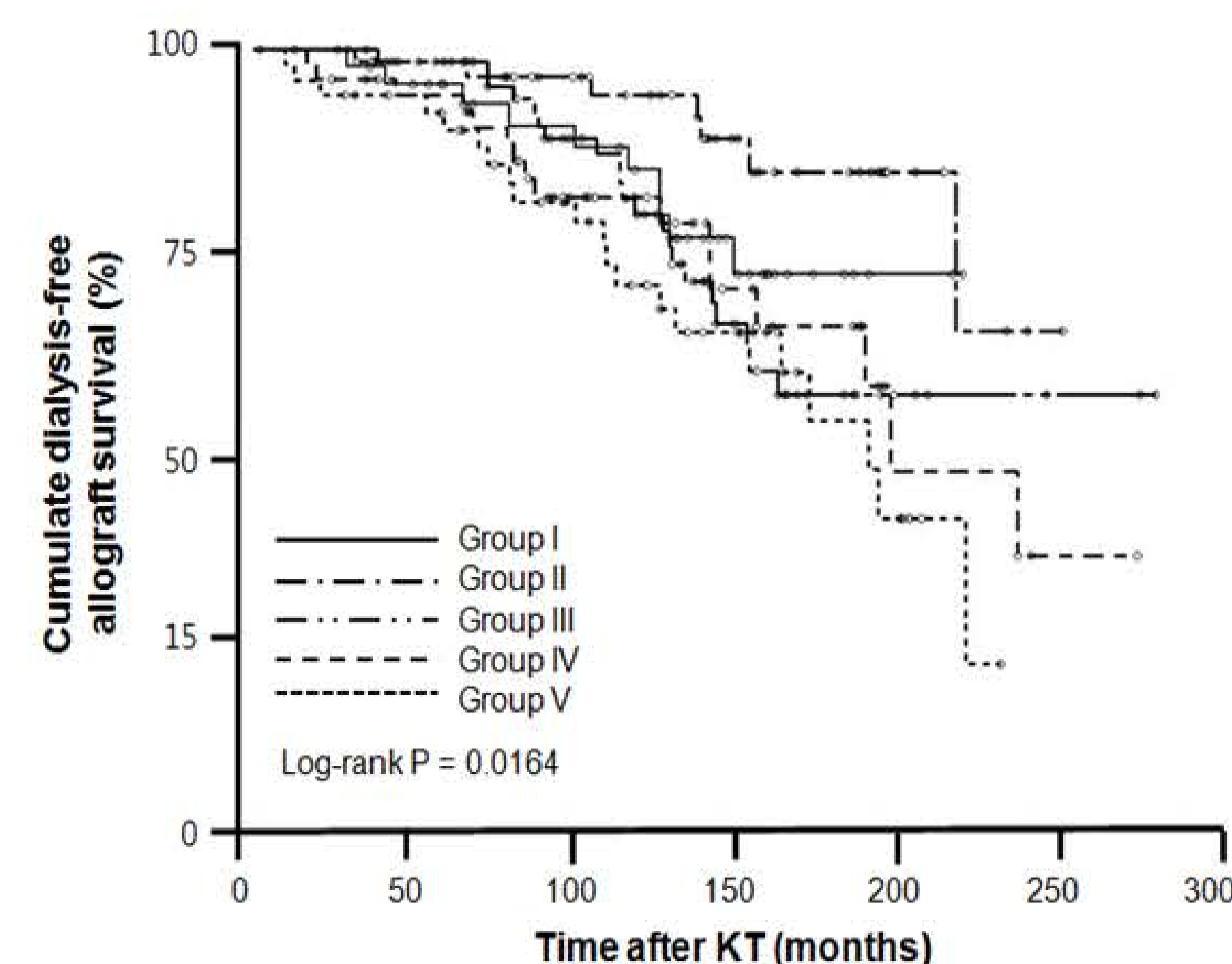


Figure 4. Dialysis-free allograft survival after KT. Best dialysis-free allograft survival was noted in allograft recipients with serum UA level > 5 and ≤ 6.0 mg/dL at 1 year post-KT (Group I, 140 ± 5 months; Group II, 208 ± 7 months; Group III, 148 ± 4 months; Group IV, 185 ± 12 months; Group VI, 164 ± 11 months; P < 0.05).

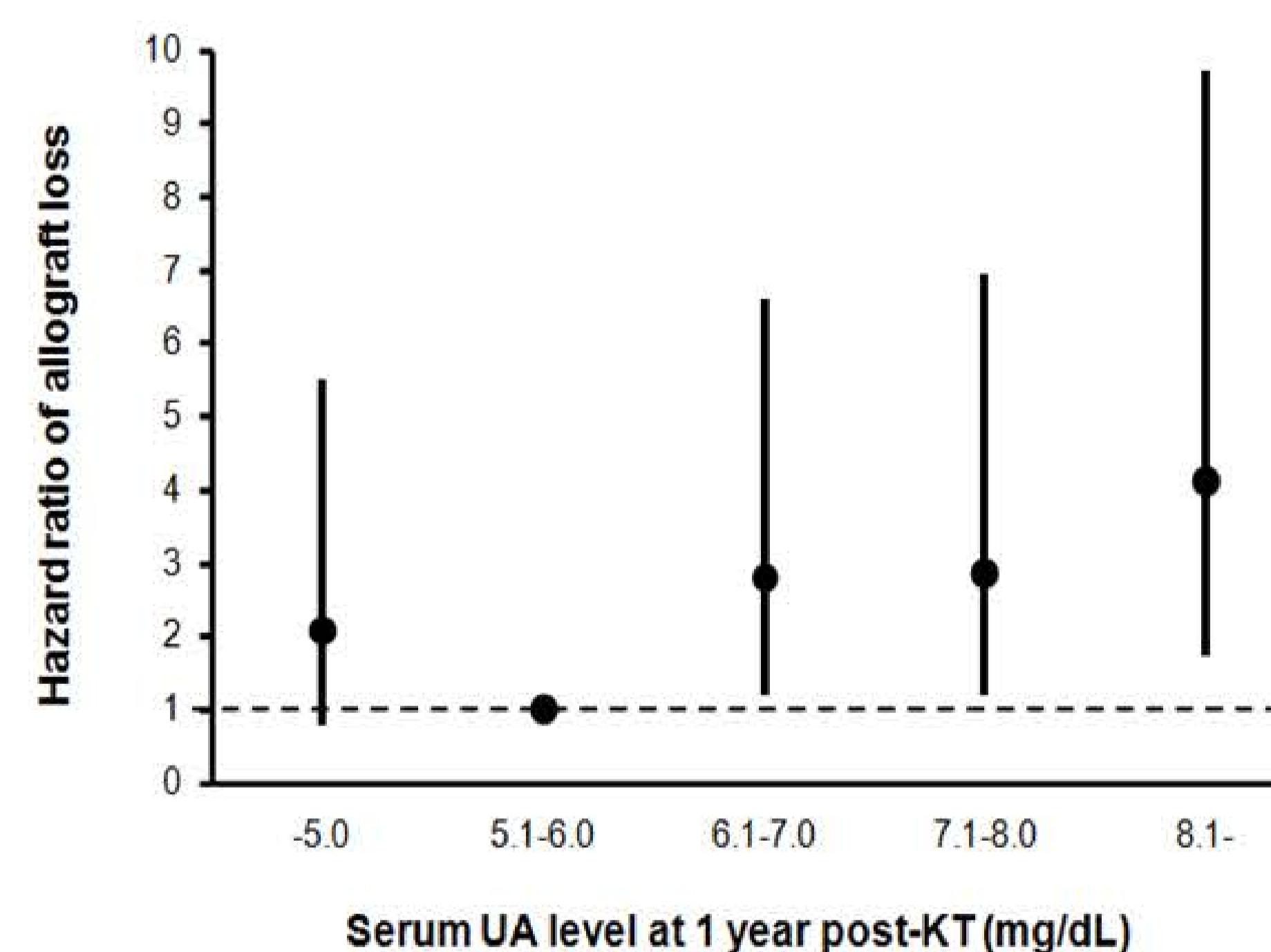


Figure 5. Cox proportional hazard model for allograft loss by baseline serum UA levels. The hazard ratios (HRs) for allograft loss as a function of baseline uric acid, using a uric acid level between 5.1 and 6.0 mg/dL as the reference, HR with 95% confidence intervals is shown here.

CONCLUSIONS

KT recipients with higher serum UA level had a poor dialysis-free allograft survival.

Our results demonstrated that there is a J-shaped association between serum UA levels and allograft outcomes in living donor KT recipients.