

Body Mass Index (BMI) mismatch in deceased kidney donation is an independent risk factor for graft failure

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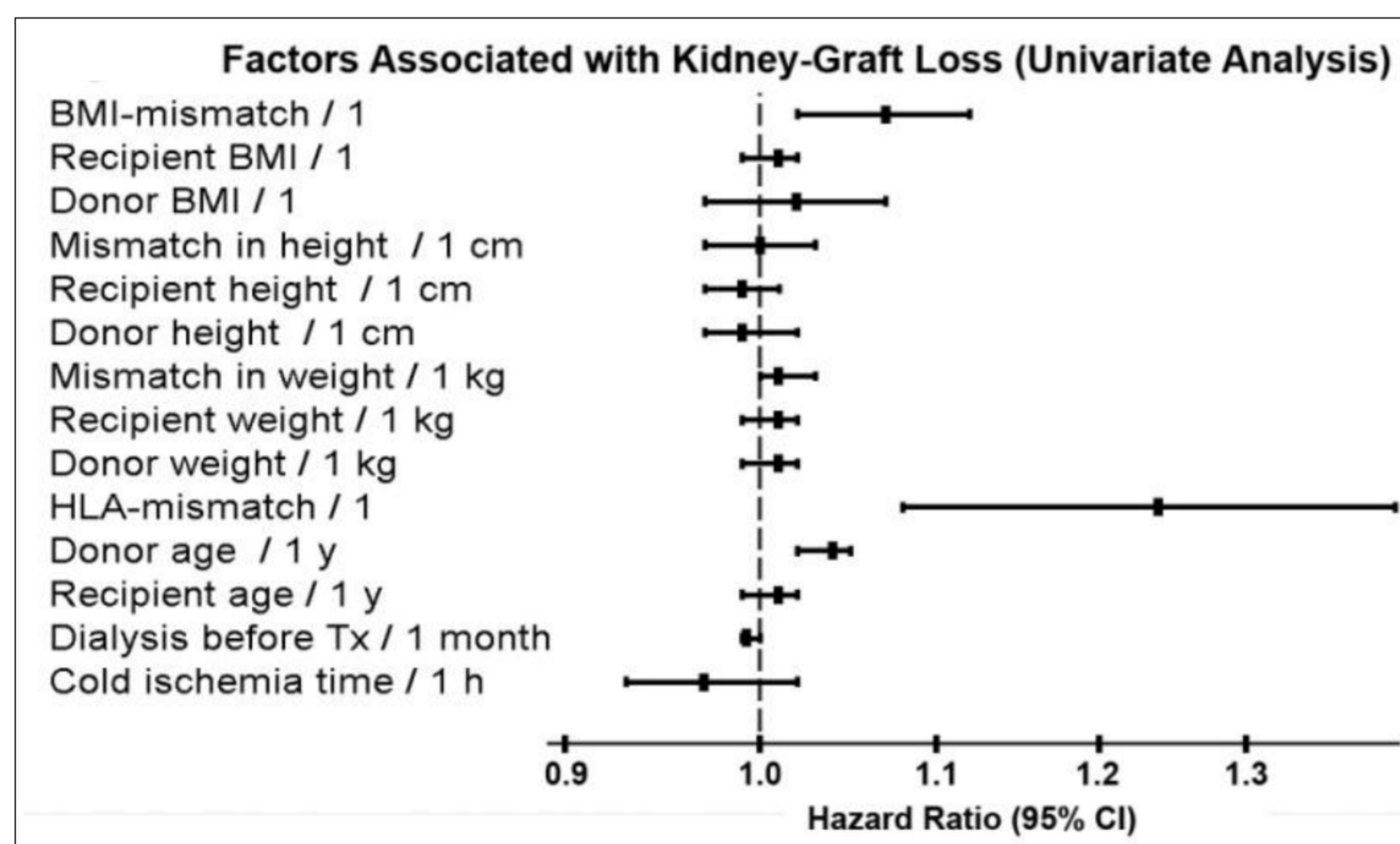
Background: While high recipient BMI at kidney transplantation is reported to be a predictor of adverse outcomes (1), the influence of BMI-mismatch in deceased kidney donors and their recipients on graft survival is so far not well characterized.

Methods: We conducted a retrospective long-term observational study of a cohort of 549 patients who received a kidney from deceased donors 2000-2013. Demographics, clinical data and long-term outcome over maximal 14 years post-transplant were assessed. Mean follow up was 6.4±3.3 years. The cohort was further categorized in two groups according to the median BMI-mismatch: patients who received a graft from a donor with a BMI which differed ≥4 kg/m² (n=265) and patients with a similar BMI category (mismatch <4 kg/m², n=284).

Results: There was a significant association of graft loss with BMI-mismatch, HLA-mismatch, donor age and recipient BMI.

Donor and recipient height or weight, mismatch in height, mismatch in weight, donor BMI and recipient age showed no significant association with graft loss (figure 1).

Figure 1



In the multivariate analysis BMI-mismatch was identified as an independent predictor for allograft loss. Other independent risk factors in this analysis were pre-transplant recipient BMI and donor age. HLA-mismatch did not reach significance level in this analysis (table 1).

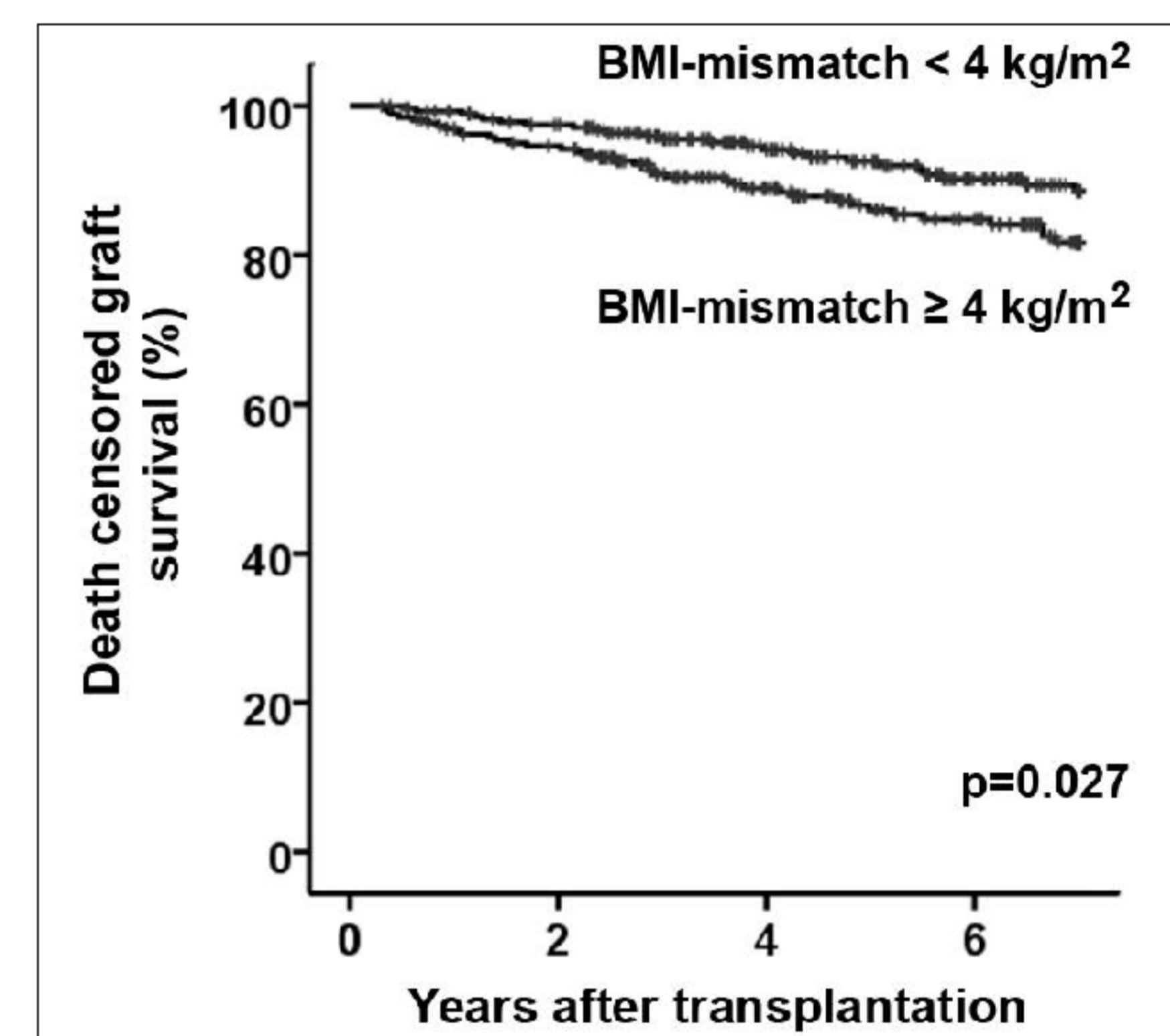
(1) Curran SP et al. Transplantation. 2014 Jan 15;97(1):64-70.

Table 1

Factors associated with Kidney-Graft Loss (Multivariate analysis)		
Variable	HR	p
BMI-mismatch per 1 kg/m ² increment	1.06	0.009
Donor age per 1 y increment	1.05	<0.001
HLA-mismatches per 1 increment	1.16	0.063
Recipient BMI per 1 kg/m ² increment	1.05	0.046

The group with a BMI-mismatch ≥4 kg/m² showed significantly lower predicted death censored graft survival (7 years after transplantation 0.82 vs 0.89, log rank p=0.027) (figure 2).

Figure 2



Within the group of patients with a BMI-mismatch ≥4 kg/m² recipients who received a graft from a donor with a lower BMI were prone to a further elevated risk vs. donors with a higher BMI (0.78 vs. 0.84). Overall graft survival 7 years post-transplant was 0.69 in the group with a BMI-mismatch ≥4 kg/m² vs 0.76 with a BMI-mismatch <4 kg/m² (log rank p=0.078). The predicted patient survival 7 years post-transplant did not differ significantly (BMI-mismatch ≥4 kg/m²: 0.80, BMI-mismatch <4 kg/m²: 0.81, p=0.731).

The baseline characteristics including donor and recipient age, sex, height, weight, cause of ESRD, HLA-mismatches and number of prior kidney transplantations did not differ significantly.

Conclusions: BMI-mismatch in deceased kidney donors and their recipients is an independent risk factor for kidney allograft loss. The risk of graft loss was further elevated for recipients, who received a graft from a donor with a ≥4 kg/m² lower BMI.