

Do All cPRA 100% Candidates Have Equal Access to Organ Allocation?

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Introduction

Since the implementation of the new KAS on December 4, 2014, renal transplant candidates with cPRA values of 98%, 99%, and 100% have received local, regional, and national priority, respectively, for deceased donor kidneys. An aspect of the new KAS not considered before its implementation is that each candidate's cPRA is reported as a whole number in UNET. Specifically, cPRAs of 97.5%-98.4%, 98.5%-99.4%, and 99.5%->99.9% are "rounded up" to 98%, 99%, and 100%. In this study, we evaluated whether incremental differences among patients broadly categorized as cPRA 98%, 99%, or 100% affected their likelihood of being allocated kidneys from deceased donors.

Methods

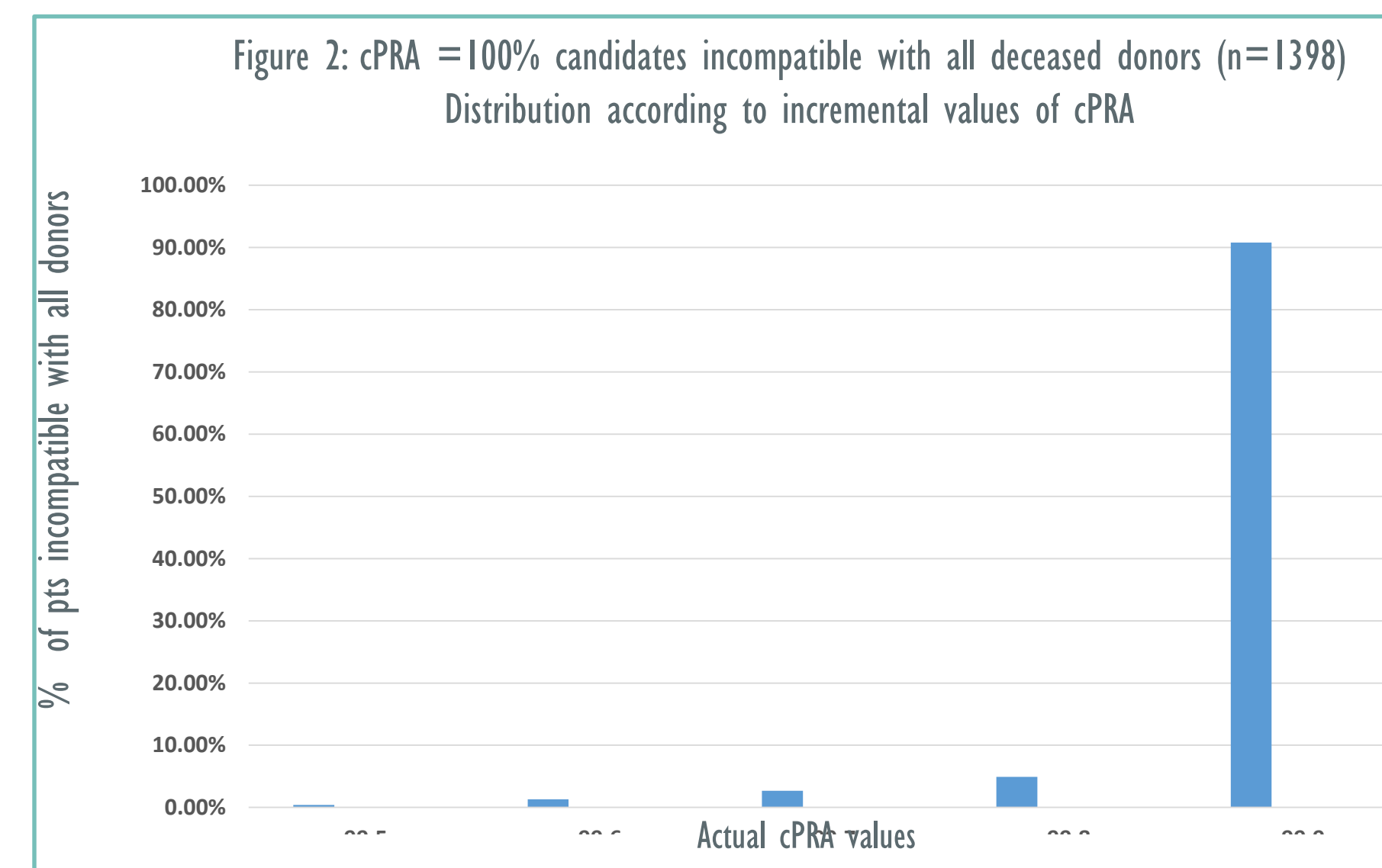
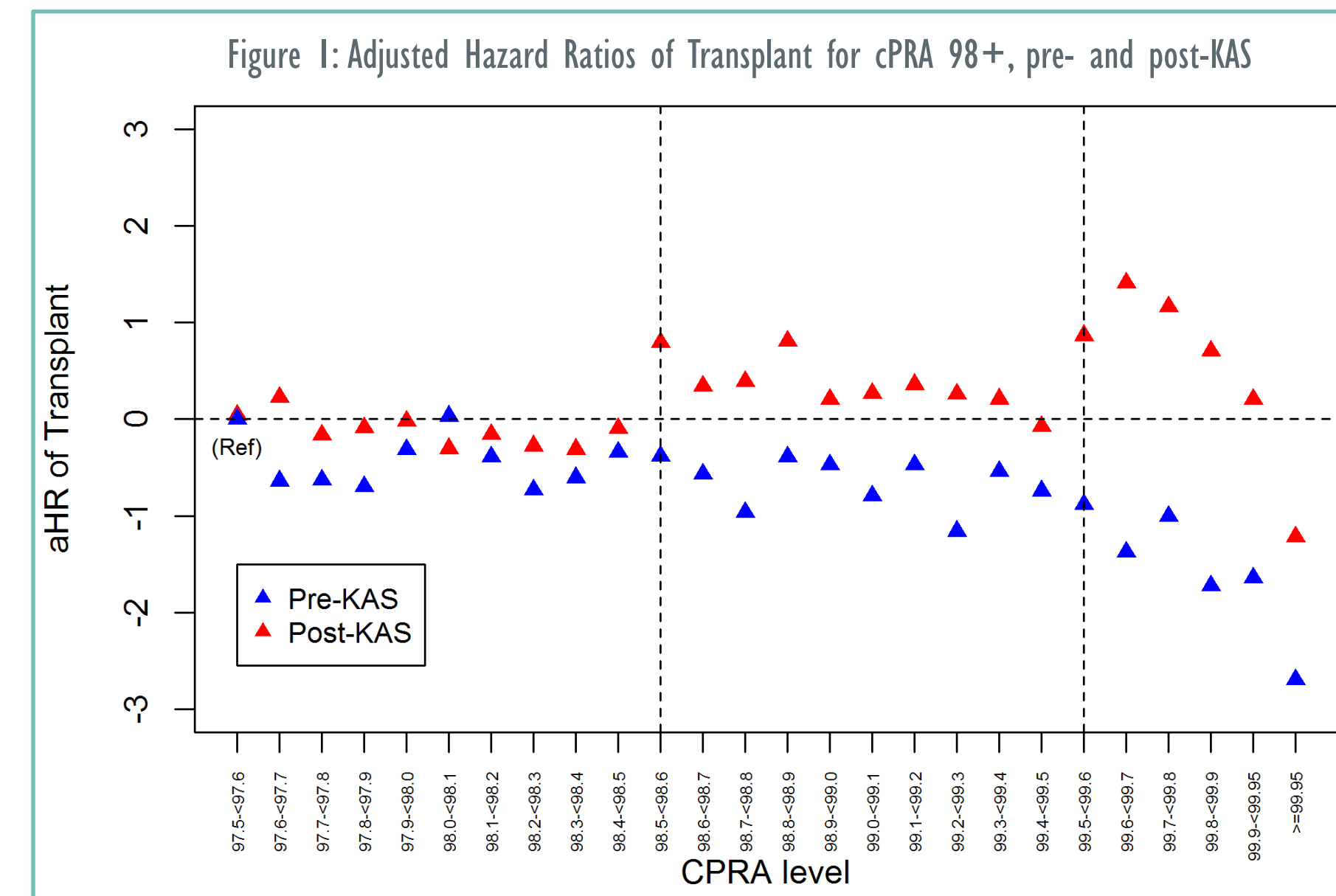
The cohort consisted of waitlist candidates for deceased donor kidney transplant December 4, 2013-December 4, 2015; candidates were censored at the earliest of waitlist removal, death, or December 4, 2015. Waiting

time was divided into pre- and post-KAS groups, and cPRA was continually assessed. Time spent waiting with cPRA <97.5 was removed. A Cox mixed-effects model was used, with fixed effects of cPRA, ABO type, race, era (pre- vs. post-KAS), and the interactions era x cPRA and era x ABO type. Random effects for OPO and for the effect of era within OPO were also included. Each effect was tested for statistical significance before inclusion.

Results

Modeling predicted that more highly sensitized patients would undergo transplant with the new KAS than under its previous version. In fact, the unadjusted transplant rates per 100 person-years on the waiting list increased from 10.6 to 11.4, 8.4 to 18.2, and 2.5 to 15.7 for candidates with cPRA 98%, 99%, and 100%, respectively, 12 months before and after implementation of the new KAS. However, as can be seen in Figure 1, the likelihood of transplant trended lower in each

broad cPRA category as values increased incrementally. The most dramatic disadvantage was for candidates with cPRA >99.95%, who despite having national priority for kidney offers, are significantly less likely to undergo transplant than candidates with cPRA 98%. Interestingly, in a recently published simulation (CJASN 11:505-511, 2016), we observed that when every deceased donor kidney transplanted in 2010 (n = 6141) was offered to waitlisted cPRA 100% candidates, ~75% (3983/5381) were compatible with an average of 17 donors and ~25% (1398/5381) were incompatible with every donor. Re-evaluating that latter group of candidates according to their incremental cPRA values (i.e., 99.5%-100%), we observed a direct correlation between incrementally higher cPRA values and the number of candidates incompatible with every donor (Figure 2).



Summary

While rates of kidney transplant increased among highly sensitized candidates with cPRA values of 98%, 99%, and 100%, the rates tended to drop in each cPRA category as values incrementally increased. This was especially noticeable in candidates reported to have cPRA 100%. In fact, among cPRA 100% candidates who were incompatible with every donor, >90% had cPRA values of $\geq 99.9\%$.

Conclusions

Transplant programs should be made aware of where their cPRA 100% candidates reside (i.e., between 99.5% and 100%) to better understand whether these candidates are likely to be allocated a deceased donor kidney or should seek an alternative strategy in order to undergo transplant.

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