

## BACKGROUND

- In the field of kidney transplantation, there is strong support for the beneficial effect of minimizing donor-recipient HLA incompatibility, and HLA-DR matching in particular contributes the most to graft survival and function.
- However, there are conflicting reports on the effect of donor-recipient HLA-DR matching on outcomes in heart transplantation.
- A few studies have shown HLA-DR matching reduces the incidence of graft rejection within the first year and increases short term graft survival.
- It is not known if HLA-DR matching impacts long term outcomes.

## OBJECTIVE

We sought to analyze the effect of HLA-DR mismatches on long term survival, and also explain possible mechanisms for its impact on survival.

## METHODS

- All adult heart transplantations performed at our institution from 2000 to 2010 were retrospectively reviewed.
- Multi-organ transplant recipients, patients who expired within the first year after transplantation and those with missing data were excluded.
- Patients were grouped according to the number of HLA-DR mismatches: 0, 1 or 2.
- We analyzed allograft function [using the most recent ejection fraction (EF)], development of angiographically significant (ISHLT grade  $\geq 2$ ) cardiac allograft vasculopathy (CAV) and survival in these groups.
- ANOVA was used for analysis.
- Kaplan-Meier survival curves were generated.
- $P$  value  $<0.05$  was considered significant.

## TABLES & FIGURES

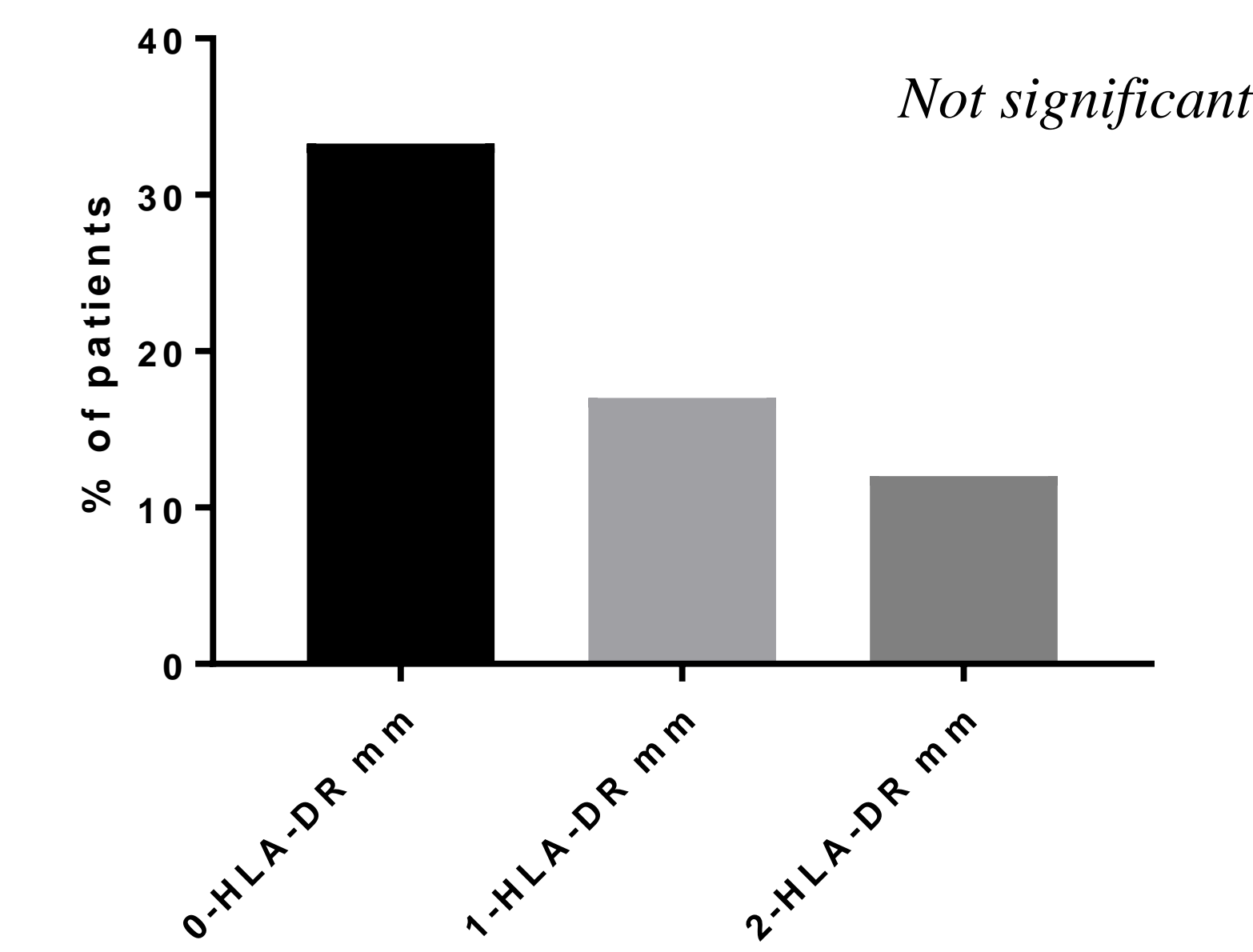
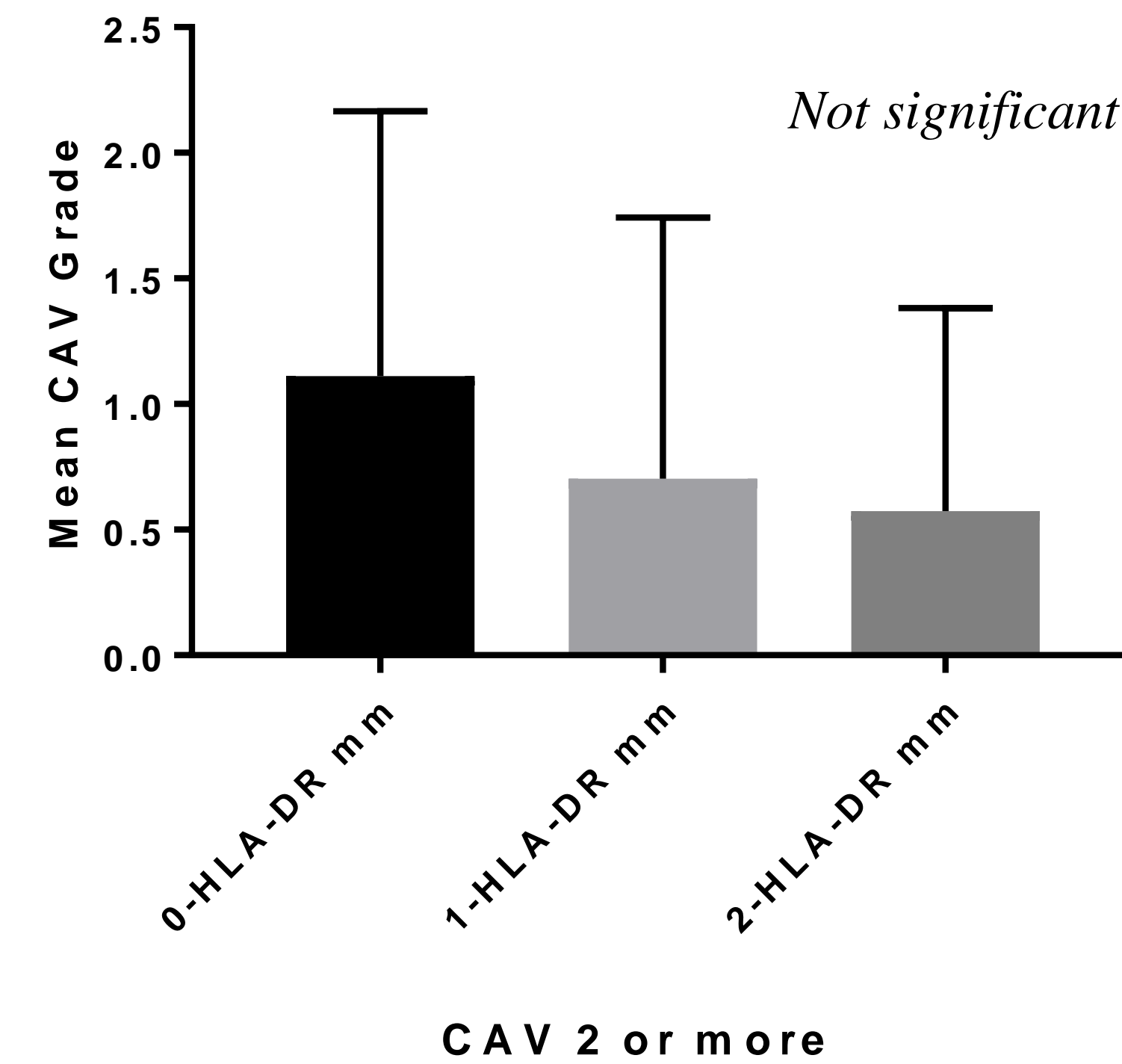
Baseline Characteristics	n=172
Age* (mean $\pm$ SD)	56.5 $\pm$ 10.3
Male gender	135 (78.5%)
Caucasian	107 (62.2%)
BMI (mean $\pm$ SD)	26.9 $\pm$ 4.2
Non-ischemic CMP	78 (45.3%)
Ischemic CMP	94 (54.6%)
Comorbidities	
Diabetes Type I	4 (2.3%)
Diabetes Type II	52 (30.2%)
Hypertension	66 (38.4%)
Re-transplant	4 (2.3%)
Pre-transplant support	
LVAD	14 (8.1%)
Inotropes	69
IABP	34
ECMO	1
Donor age >40 years	36
Gender Mismatch	42
Ischemic Time (hr, mean $\pm$ SD)	2.6 $\pm$ 0.9
Ischemic Time >4 hours	9
Years to cath (median, range)	9 (1.1-17.2)
Acute Rejection episodes	38 (22.1%)

	0-HLA-DR mm n=9	1-HLA-DR mm n=63	2-HLA-DR mm n=100	P value
Age*	58.7 $\pm$ 9.5	55.7 $\pm$ 11.4	56.8 $\pm$ 9.7	0.6565
Male gender	6 (66.7%)	47 (74.6%)	82 (82%)	<b>&lt;0.0001</b>
Caucasian	7 (77.8%)	44 (69.8%)	56 (56%)	0.7515
CAV $\geq 2$ †	3/9 (33.3%)	8/47 (17%)	9/75 (12%)	0.2269
CAV Grade (mean) †	1.11 $\pm$ 1	0.7 $\pm$ 1	0.57 $\pm$ 0.8	0.2314
Ejection Fraction (%) ‡	63.9 $\pm$ 12.9	68 $\pm$ 6.4	68.5 $\pm$ 5.5	0.1232

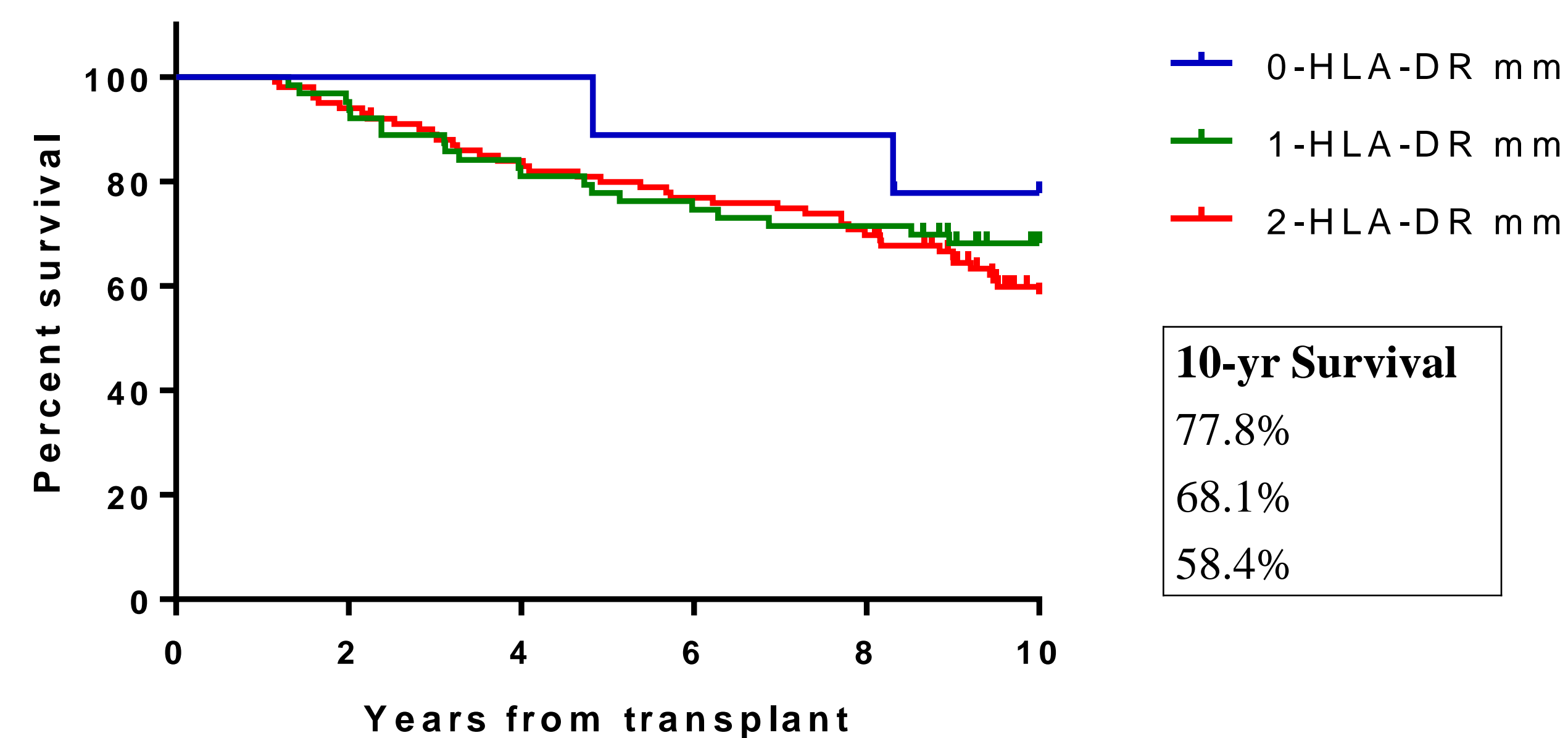
\*At time of transplant

† Cath available in 131/172

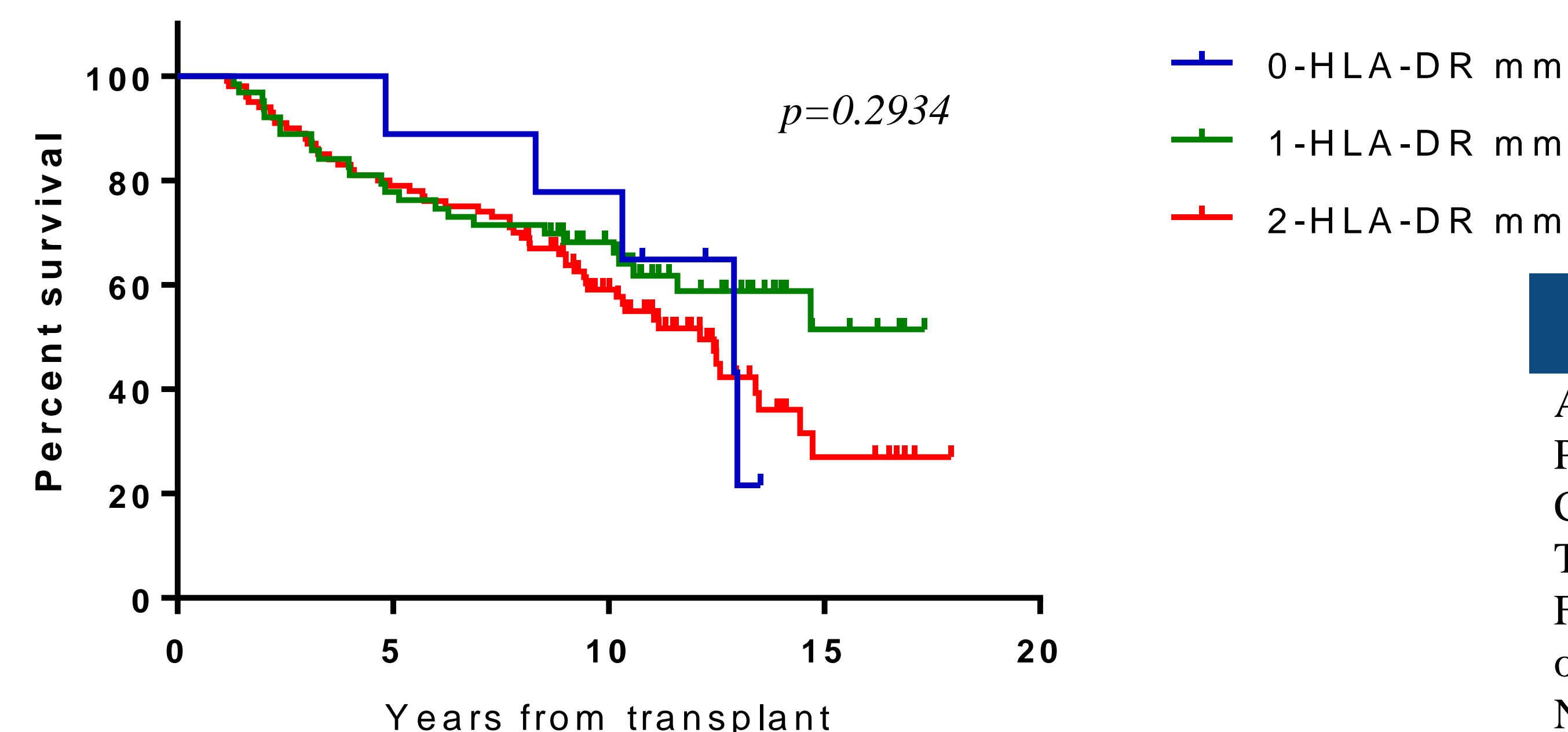
‡ EF available in 158/172



Kaplan – Meier Survival



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## RESULTS

- A total of 172 heart transplant recipients were included in the analysis.
- HLA-DR mismatch status was as follows: 9 (5.2%) had 0, 63 (36.6%) had 1, and 100 (58.1%) had 2 mismatches.
- There were more men in the group with 2 mismatches (82% vs 74.6% vs 66.7%,  $P<0.0001$ ).
- There was no difference in the development of significant CAV in the three groups (33.3% vs 17% vs 12%,  $P=0.23$ ).
- There was no difference in the severity of CAV (mean ISHLT grade  $1.11 \pm 1$  vs  $0.7 \pm 1$  vs  $0.57 \pm 0.8$ ,  $P=0.23$ ).
- Mean EF was also no different between the three groups ( $63.9 \pm 12.9\%$  vs  $68 \pm 6.4\%$  vs  $68.5 \pm 5.5\%$ ,  $P=0.12$ ).
- Survival to 10 years was similar in the three groups (77.8% vs 68.1% vs 58.4%,  $P=0.44$ ).

## CONCLUSION

- In our cohort, HLA-DR mismatches did not affect graft function, as assessed by EF, development and severity of angiographically significant CAV.
- There was no impact on long term patient survival.
- Therefore, HLA-DR matching prior to heart transplantation may not be justified given the increased cost, logistical burden of HLA matching and the longer cold-ischemic times that may result from reliance on tissue typing.

## DISCLOSURES

A. Singhvi: None. R. Araujo-Gutierrez: None. M.H. Park: None. A. Bhimaraj: Consulting Fee; Name of Commercial Interest; Abbott, Abiomed. B.H. Trachtenberg: None. I. Hussain: None. A. Guha: Consulting Fee; Name of Commercial Interest; Abiomed. Other; Name of Commercial Interest; Johnson and Johnson, Bayer. Other; Nature of Relationship; Speaker.