

# Black Ethnicity as a Risk Factor for Poor Kidney Allograft Outcomes Post-Transplantation



Queen Elizabeth Hospital

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## Introduction

The Black population are a growing ethnic minority in the UK and make up 3% of the UK's population. High rates of end stage renal failure are observed due to the prevalence of hypertension and diabetes in this cohort. They are over-represented on the transplant waiting list (11%) but under represented on the donor list (2%). Studies from the States have consistently demonstrated worse renal allograft outcomes for Black patients.<sup>1</sup> This has been challenged by Canadian and French publications that have shown equivalent outcomes between Blacks and non-Blacks.<sup>2,3</sup>

## Aims

The aims of this study was to analyse the difference in post transplant outcomes between Blacks and non-Blacks to determine whether Black ethnicity was a risk factor for worse kidney allograft outcomes in a large contemporary UK cohort.

## Methods

Data was extracted from the hospital informatics department for all kidney allograft patients that were transplanted between 2007 and 2015 at the Queen Elizabeth Hospital, Birmingham

Further data was collected manually for transplant patients from electronic patient records to create a comprehensive database

1,140 patients were included – Ethnicity breakdown of the cohort was White (72.1%), South Asian (17.6%), Black (5.5%) and other/unspecified (4.7%)

## Results

### Patient Demographics:

| Variable                                     | Blacks (n=63)    | Non-Blacks (n=1077) |
|--|------------------|---------------------|
| Age (Median)                                 | 44 (33-35)       | 46 (32-60)          |
| Gender (Male)                                | 58.7% (37)       | 59.8% (644)         |
| Type of Donor                                | Living           | 45%                 |
|  | Deceased         | 55%                 |
| Post transplantation follow up (median time) | 4.76 (2.34-7.18) | 4.48 (2.08-6.88)    |

### Post - Transplant Outcomes:

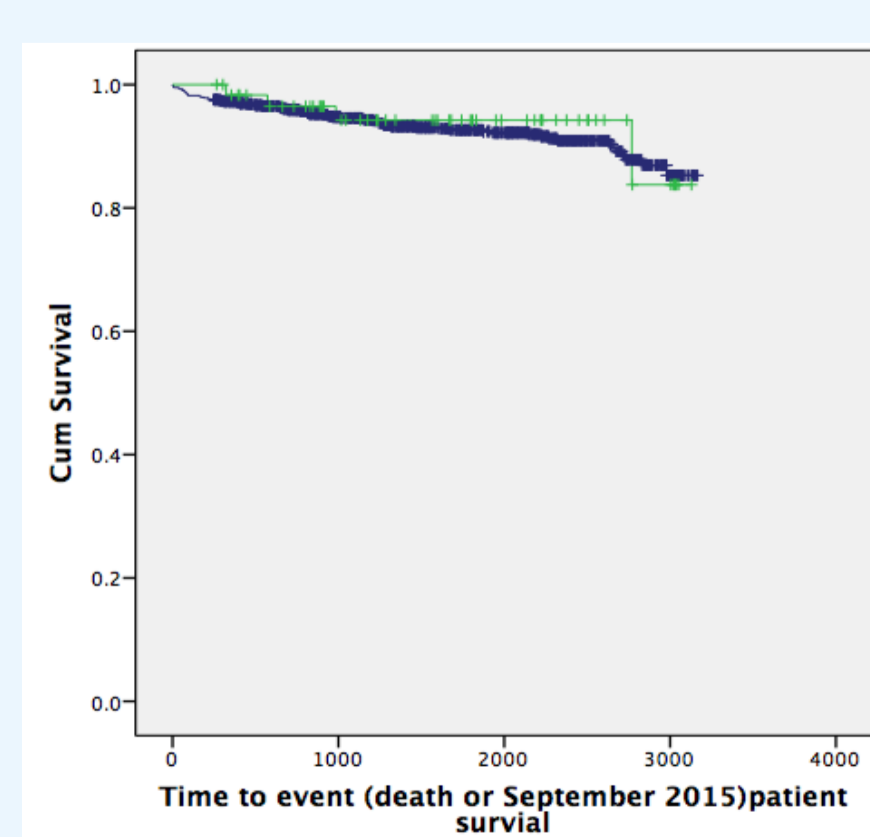


Fig 1: Patient Survival

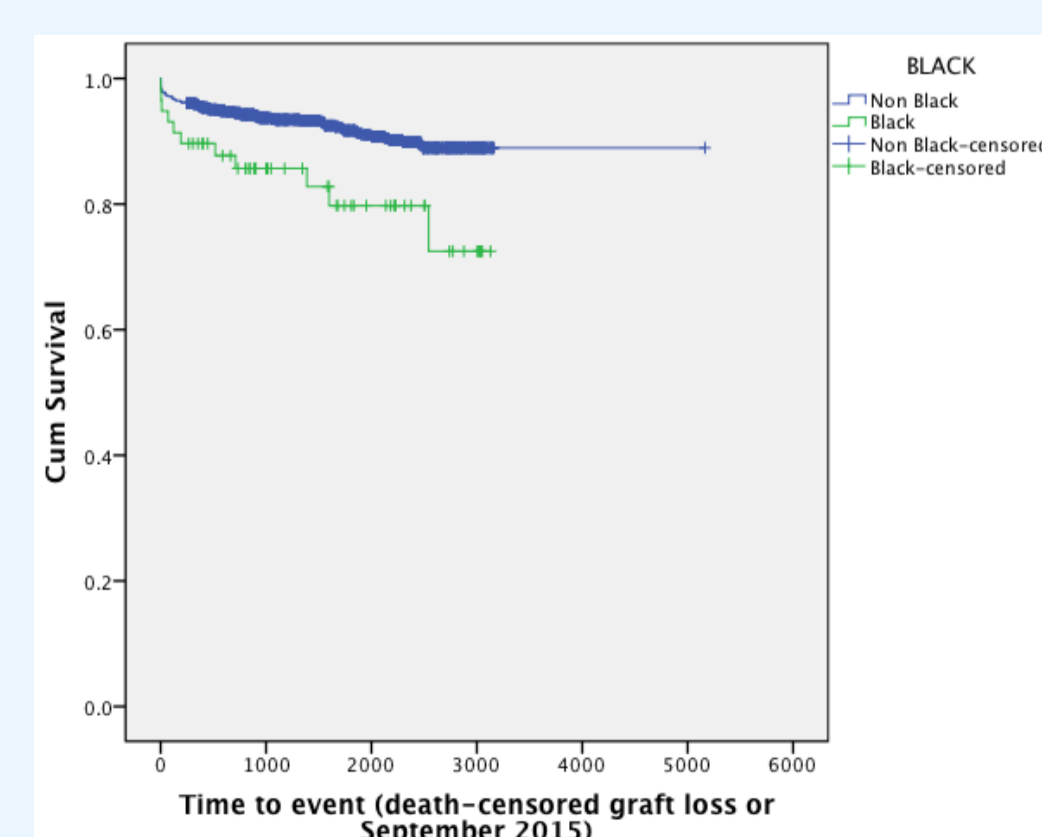


Fig 2: Death-Censored Graft Survival

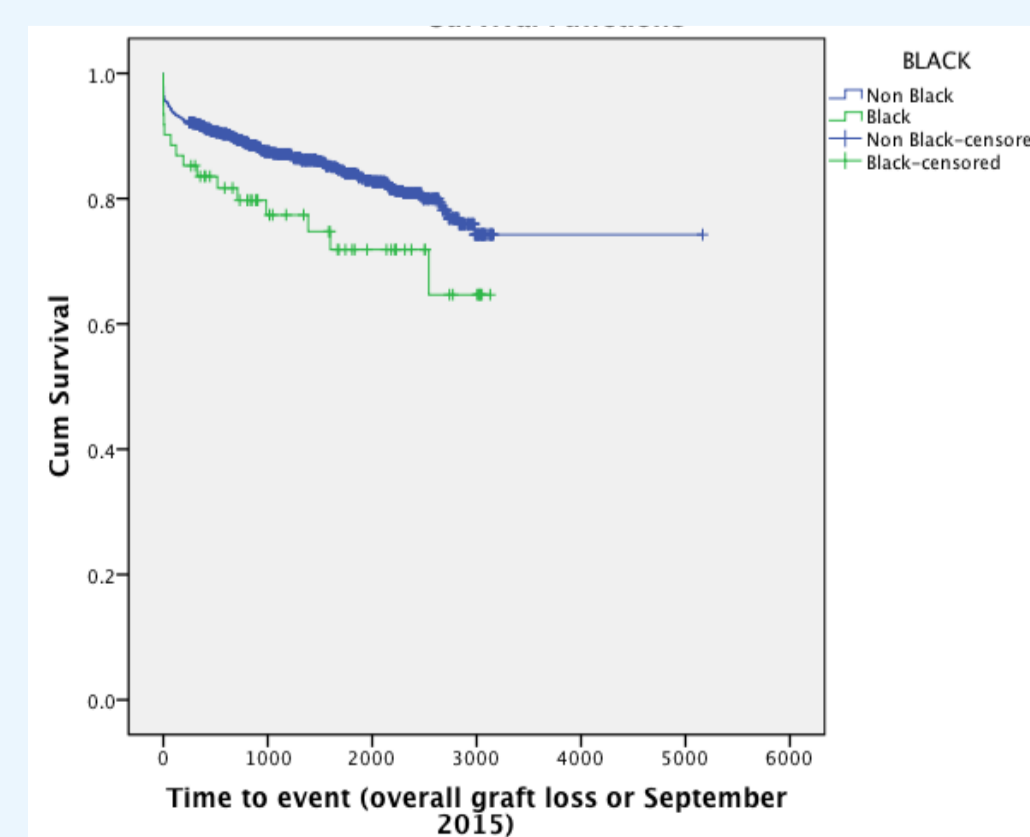


Fig 3: Overall Graft Survival

## Results continued..

|                               | Parameter                   |                     |         |
|-------------------------------|-----------------------------|---------------------|---------|
|                               |                             | Black               | P-Value |
| Patient Survival              | N (%)                       | (7.1%)              |         |
|                               | Unadjusted HR (95% CI)      | 0.847 (0.310-2.316) | 0.747   |
|                               | Fully Adjusted HR (95% CI)* | 0.885 (0.270-2.900) | 0.841   |
| Overall Graft Survival        | N%                          | (15.9%)             |         |
|                               | Unadjusted HR (95% CI)      | 1.719 (1.029-2.872) | 0.039   |
|                               | Fully Adjusted HR (95% CI)* | 1.199 (0.655-2.195) | 0.556   |
| Death-Censored Graft Survival | N%                          | (8.1%)              |         |
|                               | Unadjusted HR (95% CI)      | 2.471 (1.317-4.637) | 0.005   |
|                               | Fully Adjusted HR (95% CI)* | 1.419 (0.671-3.001) | 0.359   |

Black ethnicity versus non-black ethnicity demonstrated *equivalent patient survival* (93.7% versus 92.9% respectively, p=0.531). However they had significantly *worse death-censored graft survival* (22.2% versus 9.5% respectively, p=0.003) and *worse overall graft survival* compared to non-black patients (74.6% versus 84.6% respectively, p=0.032)

### Post - Transplant Events:

Black patients have increased risk for post-transplant diabetes (16.7% versus 8.7% respectively, p=0.048) and peripheral vascular disease (6.3% versus 1.1% respectively, p=0.009).

| Outcomes               | Blacks | Non-Blacks | P value |
|------------------------|--------|------------|---------|
| Cardiac Event          | 1.6%   | 6.3%       | NS      |
| Cerebrovascular event  | 3.2%   | 2.3%       | NS      |
| Post Transplant Cancer | 9.5%   | 5.9%       | NS      |
| Rejection              | 19.0%  | 11.2%      | 0.053   |
| PTDM                   | 16.7%  | 8.7%       | 0.048   |
| PVD                    | 6.3%   | 1.1%       | 0.009   |

Fig 4: Rate of Post Transplant Events between Blacks and non-Blacks

## Discussion

### Key Findings:

Our results showed that Black transplant recipient had worse overall and death-censored graft survival. However, after adjustment was made for age, gender, type of kidney and rejections, Black ethnicity lost its significance and was no longer an independent risk factor.

### Limitations:

1. Retrospective, single-centre analysis
2. Small number of Black patients (n=63) – difficult to determine a difference in clinical outcomes
3. Findings could have been confounded by unmeasured comorbidities or socioeconomic factors

## Conclusion

- Black kidney allograft recipients have worse overall graft survival but black ethnicity itself does not appear to be an independent risk factor for graft loss
- Black transplant recipients have slightly higher rates of acute rejection and an increased risk of post transplant diabetes and PVD
- Further research needed using National Registry data

## References

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