

Clinical epidemiology of end-stage renal failure (ESRF) in the UK

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on behalf of the UK CHIC / ESRF Study Group

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Background

- An “epidemic” of HIV/ESRF among black patients in the US has been described
- The epidemiology of HIV/ESRF in non US populations remains poorly studied – and may differ substantially
- A multi-centre observational cohort study was undertaken to study the clinical epidemiology of HIV/ESRF in the UK

Methods

- Patients with HIV/ESRF were identified from UK CHIC and local renal databases
 - eGFR <15 ml/min for >3/12
 - Received renal replacement therapy [RRT] 1998-2007
- Trends over time in ESRF incidence and prevalence
- Kaplan-Meier survival analysis from RRT initiation
- Cox regression to identify factors associated with ESRF

Results

- Of the 21,948 patients with serum creatinine values available, 65 (0.3%) were identified as having ESRF
- **Black patients (42)**
 - HIVAN 35
 - Vascular/HPT 1
 - Glomerulonephritis 1
 - Diabetes 2
 - Congenital 2
 - Unknown 1
 - **Confirmed 57%**
- **White/other patients (23)**
 - Vascular/hypertension 7
 - Glomerulonephritis 5
 - Diabetes 4
 - Amyloid 3
 - Congenital 1
 - Unknown 3
 - **Confirmed 63%**

Patient characteristics (N=21948)

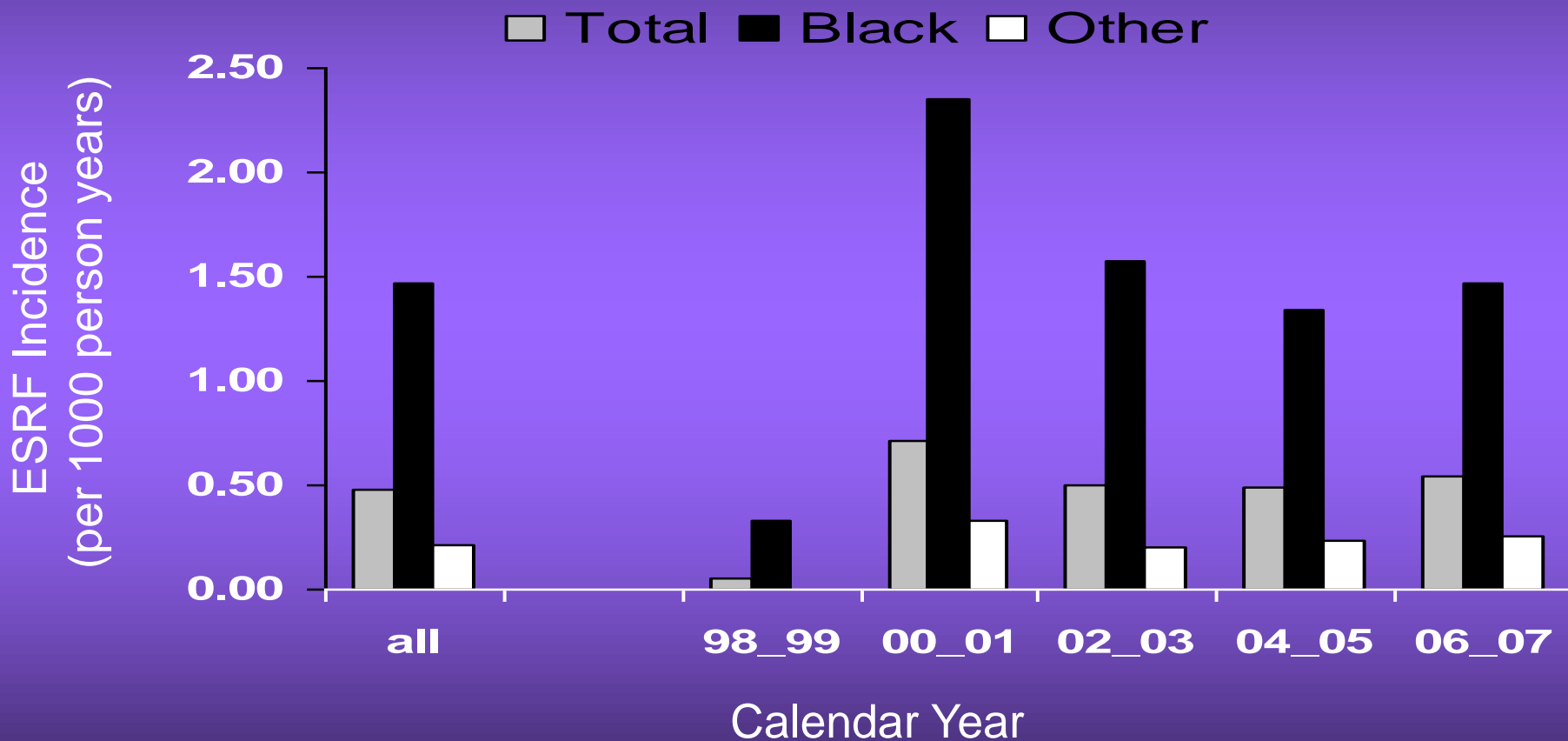
	ESRF	No ESRF	P-value ¹
N	65	21883	
Age (years), median (IQR)	38 (32, 43)	42.5	<0.0001
Female, N (%)	19 (29.2)	4707 (21.5)	0.13
Black ethnicity, N (%)	42 (64.6)	5418 (24.8)	<0.0001
Prior AIDS diagnosis, N (%)	25 (38.5)	4902 (22.4)	0.002
CD4 nadir (cells/mm³), median (IQR)	71 (27, 153)	179 (71, 300)	<0.0001
HBV+, N (%)	4 (6.2)	1679 (7.7)	0.65
HCV+, N (%)	5 (7.7)	1594 (7.3)	0.90

¹ Obtained by Chi-squared and Mann Whitney tests

Characteristics of those with ESRF by HIVAN status (N=65)

	HIVAN	Other	P-value
N	35	30	-
Age (years), median (IQR)	35 (29, 39)	42 (37, 48)	0.001
Female, N (%)	15 (42.9)	4 (13.3)	0.01
Black ethnicity, N (%)	35 (100.0)	7 (23.3)	<0.0001
Prior AIDS diagnosis, N (%)	16 (45.7)	9 (30.0)	<0.0001
CD4 nadir (cells/mm³), median (IQR)	70 (29, 144)	72 (25, 190)	0.67
HBV+, N (%)	2 (5.7)	2 (6.7)	0.87
HCV+, N (%)	1 (2.9)	4 (13.3)	0.11
pRRT<90 days, N (%)	15 (42.9)	4 (13.3)	0.01
Baseline eGFR (mL/min), median	11	50	0.01
Time HIV-pRRT (days), median (IQR)	196 (0, 1035)	2171 (1574, 3668)	<0.0001

Incidence of ESRF

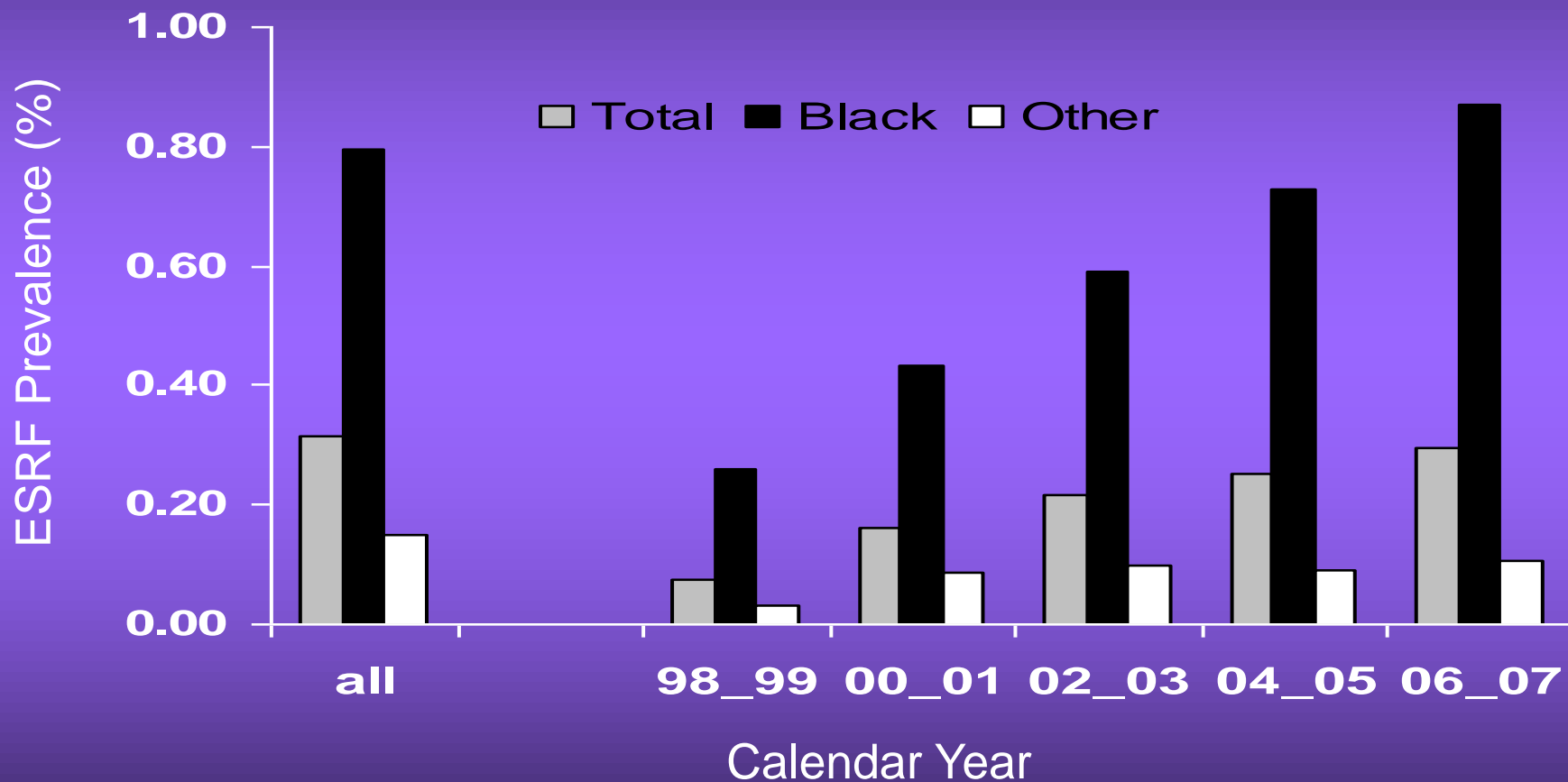


Black ethnicity: ~ 1.4 cases / 1000 person years of follow up

White / other ethnicity: ~ 0.2 cases / 1000 person years of follow up



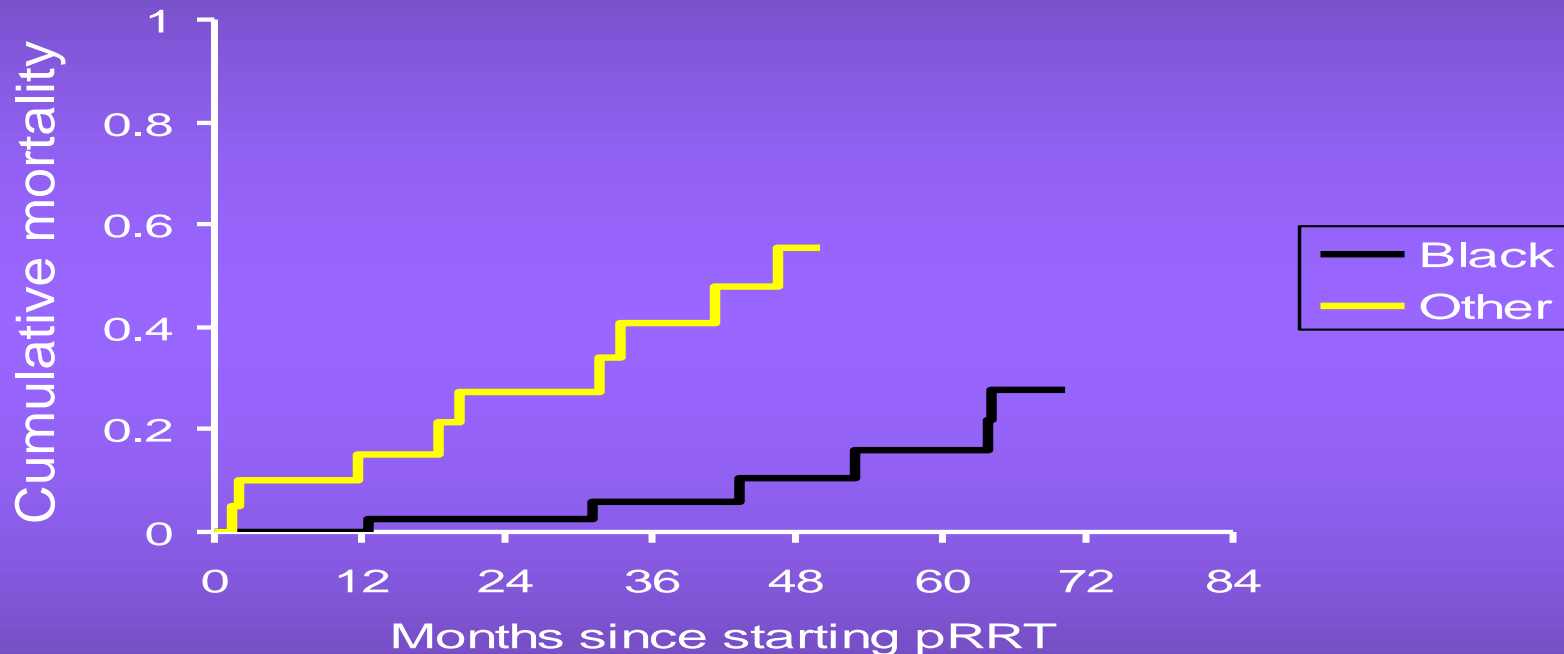
Prevalence of ESRF



By 2006/7, nearly 1% of all black HIV-infected patients had ESRF



Time to death stratified by ethnicity



The mortality rate for patients of black ethnicity was significantly lower than for those of 'other' ethnicity ($p=0.01$)

Independent factors associated with ESRF

Variable	Hazard Ratio (95%) CI	P value
Black Ethnicity (v other)	4.99 (2.42, 10.29)	<0.0001
CD4 count (time-updated, per 50 cell increase)	0.83 (0.76, 0.91)	0.001

Gender, year of follow up, viral load, time since starting HAART and HCV status were not associated with ESRF

Conclusions

- The incidence of HIV/ESRF has remained unchanged since 2002 at ~1.4 / 1000 py in black patients and ~0.2 / 1000 py in white/other patients
- The HIV/ESRF prevalence among black patients increased nearly 4 fold to reach ~1% by 2006
- The majority of HIV/ESRF in black patients was due to HIVAN, and most of these patients had advanced or end-stage renal failure at HIV diagnosis
- Favourable survival rates after RRT initiation were observed, particularly in black patients with HIVAN (~ 85% at 5 years)



Discussion

- Both prevalence and incidence of ESRF in our study are 5-10 fold lower than in the USA
- Survival of black patients in our study is better than in the USA (97% v 43% at 2 years)
- Favourable survival is likely to lead to further increases in HIV/ESRF prevalence in the UK
- Earlier HIV diagnosis in black patients is likely to be the most effective strategy to reduce the burden of HIV/ESRF in the UK

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UK CHIC/ESRF study group

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UK CHIC Steering Committee

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