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The prevalence and predictive value of dipstick urine protein (DUP) in HIV-positive persons in Europe

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INTRODUCTION

Proteinuria is an important marker for the development and progression of renal disease, cardiovascular disease and death[1-3], but there is limited information about the prevalence and factors associated with confirmed proteinuria in European HIV+ persons with an estimated glomerular filtration rate (eGFR) >60mL/min/1.73m^2.

PATIENTS AND METHODS

Baseline was defined as the first of 2 consecutive dipstick urine proteinuria (DUP) measurements during prospective follow-up >1/6/2011 (when routine collection of DUP began). Proteinuria (PTU) was defined as 2 consecutive DUP ≥1+ (>30 mg/dL) >3 months apart; persons with eGFR≤60[4] at either DPU measurement were excluded. Logistic regression investigated factors associated with PTU.

RESULTS

- 1640 persons were included (**Table 1**). 69 persons had PTU (4.2%, 95% CI 3.2–4.7%)
- Persons with diabetes had increased odds of PTU, as did those with a prior non-AIDS[5] or AIDS event and those with prior exposure to indinavir
- Females, those with a normal eGFR (>90) and those with prior abacavir use had lower odds of PTU (**Figure 1**)
- There was no significant association between past or current use of potentially nephrotoxic ARVs tenofovir, lopinavir, atazanvir (boosted or unboosted) or any other boosted PI and PTU (p>0.2)
- Limited follow-up after baseline but persons with PTU were more likely to develop CKD (**Table 2**)

CONCLUSIONS

1 in 25 HIV+ persons with an eGFR>60mL/min/1.73m^2 had confirmed proteinuria at baseline. Factors associated with PTU were similar to those associated with CKD. The lack of association with ARVs at higher eGFR levels deserves further investigation (**Table 3**).

Our findings suggest PTU is an early marker for impaired renal function and that routine dipstick urine monitoring may improve identification and clinical management of those at risk of renal impairment

Table 1

Characteristics of HIV+ persons with ≥2 DUP in EuroSIDA

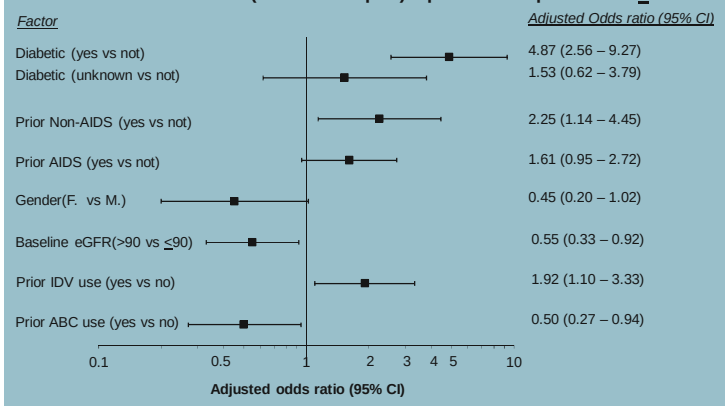
		No PTU		PTU	
		N	%	N	%
All		1571	78.6	69	4.2
Gender	Male	1296	79.0	62	90.0
HIV risk	MSM	809	49.3	33	47.8
Ethnicity	White	1454	92.6	63	91.3
On cART	Yes	1477	94.0	66	95.7
eGFR < 60	Yes	117	7,5	8	11.6
		Median	IQR	Median	IQR
Age	Years	45	37 – 52	49	40 – 57
CD4	/mm^3	570	409 – 760	566	380 – 785
eGFR	mL/min/1.73m^2	100	87 – 111	89	78 – 104
Baseline	Month/year	2/12	11/11 – 6/12	2/12	11/11 – 6/12

DUP; dipstick urine proteinuria. PTU; proteinuria; confirmed (>3 months apart) DUP ≥1+

Figure 2

Adjusted odds ratio of PTU in persons with eGFR > 60

PTU : 2 consecutive (>3 months apart) dipstick urine proteinuria ≥1+



Non-significant factors (p>0.1) included race, region of Europe, HIV exposure group, hepatitis B or C status, smoking status, hypertension, prior cardiovascular disease, HIV-RNA viral load, age, baseline CD4 count, nadir CD4 count, baseline date, nadir eGFR or time in EuroSIDA. Prior or baseline use of tenofovir, lopinavir, atazanavir (boosted or unboosted), other boosted protease inhibitor were not significant (p>0.1). Current use of indinavir (IDV) or abacavir (ABC) were not significant (p>0.1)

Table 2

Limited FU after baseline

688.2 PYFU in 723 persons with FU after baseline

3 developed CKD*

No PTU at baseline
2/685 (0.3%)
Incidence 3.1 (0.4 – 11.1)

PTU at baseline
1/38 (2.8%)
Incidence 29.3 (0.7 – 163.4)

PTU; proteinuria; confirmed (>3 months apart) DUP ≥1+
CKD; chronic kidney disease; confirmed (>3 months apart) eGFR < 60
Incidence rates per 1000 PYFU

Table 3

Relationship between ARVs and PTU

- No significant association between past or current use of TDF, LPV/r, ATV or ATV/r, any other boosted PI and PTU (p>0.2)

WHY?

- Using confirmed DUP measurements
- Analyses restricted to those with eGFR>60
- Cross sectional design of this study
- Limited FU after baseline
- Other early markers needed to capture deteriorating renal function associated with ARVs may be needed at higher eGFRs

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