1571. Risk factors for Tenofovir-associated Renal Dysfunction in HIV-positive Patients

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Background. Risk factors associated with renal dysfunction in patients on tenofovir remain unknown and optimal monitoring is unclear. We investigated whether a urine protein-osmolality ratio would be a useful screening parameter.

Methods. This retrospective, single-center study of HIV-positive subjects investigated the relationship between three surrogates of renal function (eGFR, protein-osmolality (P:O) ratio and predicted 24hr proteinuria) and multiple risk factors for development of kidney dysfunction. Subjects were >18 years, on tenofovir with at least one urinalysis and serum creatinine performed between 2010 and 2013. Univariate regression analysis was used to analyze risk factors associated with development of proteinuria and abnormal eGFR during tenofovir therapy.

Results. Of 117 study subjects, 81% were male; 19% were African-American. The mean age was 45.1 ±11.8yrs; median tenofovir duration was 3.3yrs. Median CD4 count and HIV viral load at study initiation were 451 cells/μL and 62 copies/mL, respectively. 68% of subjects had an abnormal P:O ratio; 39% had abnormal predicted 24hr proteinuria and 9% had abnormal eGFR. After age adjustment, subjects on tenofovir > 5yrs had almost a four-fold increased risk of having had an abnormal P:O ratio than subjects on tenofovir for < 1yr (OR 3.9; 95% CI 1.2-14.0; p = 0.024). Increasing age was associated with an abnormal P:O ratio (OR 1.42, 95% CI 1.0-2.1, p = 0.048), 24hr protein >200 (OR 1.5; 95% CI 1.1-2.2; p = 0.01) and eGFR (OR 2.1, 95% CI 1.3-3.8; p = 0.048). Patients with hypertension were more likely to have abnormal eGFR (OR 3.8, 95% CI 1.1-12.9; p = 0.026). Neither abnormal P:O ratio nor abnormal predicted 24hr proteinuria were associated with an increased risk of abnormal eGFR.

Conclusion. Abnormal renal function, as measured by P:O ratio and proteinuria is common in HIV infected patients on tenofovir but rarely progressed to abnormal eGFR during the study period. Duration of tenofovir use, age, diabetes and hypertension were risk factors for renal dysfunction in this study. Neither abnormal P:O ratio nor predicted 24hr proteinuria were associated with development of abnormal eGFR; serum creatinine remains the gold standard for monitoring renal function while on tenofovir.

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