VALIDATION OF THE D:A:D CHRONIC KIDNEY DISEASE (CKD) RISK SCORE IN A LARGE AFRICAN COHORT

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BACKGROUND

• Chronic Kidney Disease (CKD) is a frequent complication in people living with HIV (PLWHIV), particularly among those living in sub-Saharan Africa.
• As renal replacement therapy is often unavailable or unaffordable in this part of the world, prevention and early detection of CKD is therefore critical in these populations.
• A risk score for predicting CKD in people with HIV has been developed using data from the Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) study, but this score has not been validated in sub-Saharan Africa (1).

RESULTS

To assess the performance of the D:A:D risk score to predict CKD using data from a large cohort of people living with HIV in West Africa

METHODS

Population: PLWHIV initiating antiretroviral treatment between 1996 and 2018 in four clinics in Burkina Faso (CHU S. SANOU), Côte d’Ivoire (CEPREF, CIRBA) and Togo (CHUSO).
Participants included had ≥3 creatinine measurements, a follow-up in the cohort ≥3 months and a baseline estimated glomerular filtration rate (eGFR) >60 ml/min/1.73m².
EGRF was calculated using the CKD-EPI equation.
The D:A:D score (short version) was calculated using the coefficients of the four variables available in the database: age, gender, nadir CD4 and baseline eGFR (Table 1).
The score was categorized in low (<0), medium (0-4) and high (≥5) risk groups as proposed by Mocroft et al (1).
Discrimination was assessed by the C-statistics and calibration parameters were expressed as ratio of observed / expected events.

Table 1. Baseline characteristics and D:A:D score coefficients

| Median follow-up duration, years [IQR] | 6.0 (3.3;6.6) | 6.1 |
| Median renal assessment frequency, per year [IQR] | 1.9 (1.5;2.2) | 3 (2.4) |
| Developed CKD, n % | 692.5 (45) 641.3 % | 36.0 |
| Incidence of CKD, per 1000 PYFU [95% CI] | 7.6 (7.0;8.1) | 6.2 (5.7;7.6) |
| Median D:A:D Score [IQR] | -2 [-5 to -2] | -2 [-4 to 2] |

Participants were followed for a median duration of 6 years in both IeDEA and D:A:D cohorts. CKD incidence ranged from 7.5 to 9.2 % PYFU in the clinics and was higher in the IeDEA cohort than in the D:A:D cohort.

Table 2. CKD incidence and risk score distribution

| Low (<0) | D:A:D | 2.4 (2.0; 2.8) | 0.6 (0.4; 0.8) |
| Medium 0-4 | D:A:D | 8.3 (7.0; 9.8) | 4.7 (3.8; 5.5) |
| High ≥5 | D:A:D | 30.1 (27.3; 33.2) | 36.1 (32.9; 39.2) |

Figure 1. Crude CKD incidence (A) and progression to CKD at 5 years (B) and 95% confidence interval by CKD risk groups

This study confirms the validity of the D:A:D score in identifying people at high risk of CKD who could benefit from prevention intervention in HIV outpatient clinics in West Africa.

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