*­Nigeria R3 Dataset*

Data were collected on 2500 people living with HIV who were on stable antiretroviral therapy (ART) for at least 6 months and attending the HIV clinic at the Amino Kano Teaching Hospital. People living with HIV are at increased risk for developing kidney disease. The primary purpose of this study was to investigate factors associated with kidney disease, and in particular, to measure the association between the apolipoprotein 1 (APOL1) high-risk genotypes and markers of poor kidney function. This dataset contains cross-sectional data. Primary study results, as well as details about the study design, were reported in Wudil et al., 2021.

*Reference*

Wudil UJ, Aliyu MH, Prigmore HL, Ingles DJ, Ahonkhai AA, Musa, BM, Muhammad H, Sani MU, Nalado AM, Abdu A, Abdussalam K, Shepherd BE, Dankishiya FS, Burgner AM, Ikizler TA, Wyatt CA, Kopp JB, Kimmel PL, Winkler CA, Wester CW. Apolipoprotein-L1 (APOL1) risk variants and associated kidney phenotypes in an adult HIV cohort in Nigeria. Kidney International 2021; 100: 146–154

*Data Dictionary*

|  |  |
| --- | --- |
| Variable | Description |
| age | Age in years |
| male | Male sex at birth (1=male, 0=female) |
| bmi | Body mass index (kg/m2) |
| smoke | Current smoker (1=yes, 0=no) |
| cd4 | CD4 T Cell count (cells/mm3) |
| tdf | Currently on an antiretroviral therapy regimen containing Tenofovir |
| dtg | Currently on an antiretroviral therapy regimen containing Dolutegravir |
| risk.alleles | Number of high risk APOL1 genotype alleles (0, 1, or 2) |
| htn | Self-reported hypertension (1=yes, 0=no) |
| jnc\_bp | Joint National Committee blood pressure classification (Normal, Pre-hypertension, Stage 1 Hypertension, Stage 2 Hypertension) |
| Years.ART | Years on antiretroviral therapy |
| uACR | Urine albumin creatinine ratio (mg/g) |
| eGFR | Estimated glomerular filtration rate (ml/min per 1.73 m2) |
| potassium |  |
| sodium |  |
| bicarbonate |  |
| chloride |  |
| urea |  |
| SBP | Systolic blood pressure (mm Hg) |
| DBP | Diastolic blood pressure (mm Hg) |
| DM | Diabetes mellitus (1=yes, 0=no) |

*Assignments*

Among people living with HIV in Kano, we are interested in studying blood pressure and factors associated with blood pressure / hypertension.

*Day 1.*

Explore the dataset and present summary statistics of key variables. Look at univariate associations between potential risk factors and self-reported hypertension. Report odds ratios, 95% confidence intervals, and p-values.

*Day 2.*

Look at adjusted associations between potential risk factors and self-reported hypertension. Investigate potential scientifically meaningful interactions. Consider non-linear associations. Present meaningful odds ratios, 95% confidence intervals, and p-values. Interpret findings.

*Day 3*.

Look at unadjusted and adjusted associations between key variables and Joint National Committee blood pressure classification. Report odds ratios, 95% confidence intervals, and p-values. Interpret findings. Investigate the proportional odds assumption and its reasonableness. If needed, fit models that relax the proportional odds assumption.

*Day 4.*

Look at unadjusted and adjusted associations between key variables and diastolic blood pressure. Fit both linear regression models and cumulative probability models (CPMs). Interpret all parameters estimates, providing estimates, 95% confidence intervals, and p-values. Compare and contrast the estimated conditional expectation (and 95% confidence intervals) as a function of age between the CPM and the linear regression model. From the CPM, also compute the conditional median as a function of age, the conditional probability that systolic blood pressure is greater than 130 as a function of age, and corresponding 95% confidence intervals.

*Final Homework*

Create a report that describes the relationship between risk factors and hypertension, Joint National Committee blood pressure classification, and diastolic blood pressure. Describe the methods used. Include relevant tables and figures. Summarize findings and interpret results with a few paragraphs.