ABSTRACT

BACKGROUND AND OBJECTIVES

HIV infection is a common cause of chronic kidney disease, even more so in black African-Americans, and native Africans who are prone to HIVAN. This comparative study was undertaken to validate the use of MDRD and Cockroft-Gault formulae in screening HIV sero-positive patients for significant renal impairment.

SUBJECTS, MATERIALS, AND METHOD

One hundred and fifty HIV sero-positive patients from the HIV/AIDS clinic, and 75 control subjects from the MOPD of JUTH, Jos, who met the inclusion criteria, were consecutively recruited from April 2006 to December 2006. Seventy five of the HIV sero-positive patients had AIDS, while the remaining 75 HIV sero-positive patients constituted the Non AIDS group. The CDC (Centre for Disease Control and Prevention) criteria were used in classifying the HIV sero-positive patients into two of the three groups. Twenty-four-hour urine collection was requested from each of the subjects involved in the study, and a blood sample was collected at the end of the 24-hour urine collection for serum creatinine determination. Blood samples were also requested for other relevant investigations. The formulae (MDRD4, MDRD6 and C&G) were later used to estimate the GFR of the patients.

RESULTS

Cockroft-Gault formula had a better correlation (0.4, 0.59, and 0.66 in the AIDS, Non AIDS and Control groups respectively) with creatinine clearance than any of the MDRD formulae (MDRD4 0.2,
0.37, and 0.56, MDRD6 0.2, 0.46, and 0.63 respectively for the AIDS, Non AIDS and Control group respectively).

The formulae had poor predictive accuracy (far below 90%), although the values obtained with C&G in the AIDS group (72%) was much better than those obtained with the other formulae (MDRD4 53.33% and MDRD6, 66.67%). C&G formula also had a higher result (70.67%) than that of MDRD4 (65.33%) in the Non AIDS group. It result is almost at par with that of MDRD6 (72) in this same group.

The MDRD6 and C&G had a fair sensitivity (15.4%, 46.2%, and 51.3% for MDRD4, C&G and MDRD6 respectively) in the AIDS group and in the Non AIDS group (38.9%, 58.3%, and 61.1% for MDRD4, C&G, and MDRD6 respectively). The MDRD4 had a very poor sensitivity in both groups of HIV sero-positive patients.

Specificity for the different formulae used was 88.9%, 94.4%, and 83.3% for C&G, MDRD4, and MDRD6 respectively in the AIDS group, and 82.1%, 84.7%, and 82.1% for Cockroft-Gault, MDRD4 and MDRD6 respectively in the Non AIDS group.

MDRD4 had a higher specificity in both groups of HIV sero-positive patients than the other two formulae.

**Conclusion**

MDRD6 and C&G formulae may be used in estimating the GFR of HIV sero-positive patients, although not with certainty. The 24-hour urine creatinine clearance estimation remains a better option. The MDRD4 formulae had a very poor sensitivity in both group of HIV sero-positive patients; this is not a good attribute of a screening test.