URINARY SCREENING ABNORMALITIES IN ANTIRETROVIRAL-NAIVE HIV-INFECTED OUTPATIENTS AND IMPLICATIONS FOR MANAGEMENT—A SINGLE-CENTER STUDY IN SOUTH AFRICA

Few urinary screening studies have been performed to determine the incidence of urinary abnormalities in antiretroviral therapy-naive, HIV-infected outpatients. From published data, the incidence appears to be high, particularly when compared with populations outside sub-Saharan Africa. In South Africa, urinary screening in antiretroviral therapy clinics is not routinely practiced. The aim of this descriptive study was to screen antiretroviral therapy-naive, HIV-infected outpatients attending the HIV clinic for urinary abnormalities, namely leukocyturia, microscopic hematuria, and microalbuminuria/proteinuria. This study showed that 84% of the screened population had AIDS (CD4 count <200 cells/mm³), and the incidence of abnormalities on urinary dipstick testing was high: 30% had leukocyturia, 33% had microscopic hematuria, and 44% had microalbuminuria/proteinuria. In patients with leukocyturia, an infective organism was cultured in only 29.1% of cases, predominantly Escherichia coli (70%) with sterile leukocyturia comprising the remainder. There may be an association with tuberculosis (TB) or sexually transmitted infections (STI) in the sterile leukocyturia group, but this remains to be confirmed. In those with a culture positive result the most common organism was E.Coli (70%), which exhibited 90% resistance to cotrimoxazole, demonstrating that cotrimoxazole prophylaxis is not effective to prevent urinary tract infection in this group. On the basis of these findings, it has been proposed that urinary screening be considered standard of care in HIV clinics in South Africa. An algorithm has been proposed for use in antiretroviral therapy clinics in South Africa to guide clinicians regarding the cost-effective management of urinary dipstick abnormalities.

Key Words: HIV, Antiretroviral Therapy, Urinary Screening, Proteinuria, Leukocyturia, Microscopic Hematuria, Kidney Disease

INTRODUCTION

Few data exist on urinary screening of antiretroviral (ART)-naive, HIV-infected patients for early kidney disease, especially in sub-Saharan Africa. In the United States, the incidence of HIV-associated nephropathy to be 3.5%-12.0%. If this were to be extrapolated to sub-Saharan Africa, with an estimated 22.5 million people infected with HIV, 788,000-2.7 million people would be expected to have HIV-associated nephropathy. Given the current paucity of resources available for managing end-stage renal disease in this region, the emphasis on early detection and treatment of HIV-associated chronic kidney disease (HIVCKD) must assume prime importance. A few studies have revealed that when screening for proteinuria in HIV infection, additional abnormalities such as leukocyturia and microscopic hematuria, have been found. The relevance of these findings has not been investigated further, nor is the pathogenesis understood. Because of the paucity of data in sub-Saharan African countries, we undertook a urinary screening study in ART-naive, HIV-infected outpatients attending the HIV clinic at Johannesburg Hospital, South Africa. The aim was to detect early kidney disease in this population by screening for proteinuria (including microalbuminuria). It soon became apparent that additional abnormalities (leukocyturia/microscopic hematuria) were prevalent. Because of the potential relevance of these findings, they have been included in this description of urinary abnormalities in this population.

METHODS

Ethics approval was obtained from the Human Research Ethics Committee, University of the Witwatersrand, clearance certificate number M040929. All specimens that required laboratory analysis were processed by the Johannesburg Hospital laboratory, National Health Laboratory Services. The study was conducted at the HIV outpatient clinic at Johannesburg Hospital from February through December 2005. The study sample was recruited from a pool of patients that were referred from the Johannesburg Hospital inpatient service or from surrounding healthcare facilities. Initial urinary screening was performed on new patients attending the HIV outpatient clinic who were not yet on ART. Demographic data (age, sex, race) and clinical data (CD4 count, viral load, weight) were recorded when possible at the screening visit.

The screening was initially intended only to detect proteinuria, but because of the high prevalence of additional abnormalities, these data have been included. Since the aim of this screening study was initially only to detect proteinuria, a clean-catch technique was not advised for urine collection. It was not part of the study protocol to ask about the presence of...