

Study of spectrum of kidney diseases in patients with HIV on ART

Dr Rakesh Yerra¹(PG resident), Dr Ramesh Chandra Vyasam²(Associate Professor), Dr G Prasad³(Professor), Dr Rizwan⁴(PG resident)

Department of Nephrology, Andhra Medical College, Visakhapatnam, Andhra Pradesh¹²³⁴, India

Corresponding author: Dr Ramesh Chandra Vyasam, Associate Professor, Department of Nephrology, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India

Abstract:

BACKGROUND: Acquired Immunodeficiency Syndrome (AIDS) is caused by Human Immunodeficiency Virus (HIV) which affects the human immune system. Renal involvement is seen in 5-30% of patients with HIV. Worldwide, in HIV patients, chronic kidney disease has become an epidemic especially in Black population. Renal biopsy is an essential tool to know the histopathology of kidney disease in patients with HIV. HIV associated nephropathy (HIVAN) is a glomerular disease seen in HIV patients. As per Western and African studies, HIVAN constitutes 60% of renal biopsies in HIV patients.

AIMS AND OBJECTIVES: To study the clinical profile and renal histopathology in HIV patients presenting with kidney disease. Objective is to study the spectrum of renal disorders in HIV patients. To study the biochemical and other laboratory abnormalities and the need for renal biopsy in these patients.

Materials and methods: All HIV patients, above the age of 18yrs presenting with kidney disease admitted in nephrology wards of Andhra Medical College, King George Hospital, Visakhapatnam, Andhra Pradesh, India between April, 2019 to December, 2020 were included in the study.

Results: Out of the total 30 patients, 18 are males and 12 are females. Most patients belong to 30 to 39 years age group. Most common symptom is oliguria. Comorbid illnesses are hypertension in ten patients and diabetes in three patients. Most common renal histology is infection related glomerulonephritis.

Conclusion: Out of the thirty patients who are studied, the most common renal histologies are infection related glomerulonephritis and focal segmental glomerulosclerosis. HIVAN is not seen in our study. Low CD4 counts are associated with pyelonephritis.

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I. Introduction

Acquired immunodeficiency syndrome (AIDS) is caused by human immunodeficiency virus (HIV), which involves the human immune system. Worldwide, in the HIV population, renal disease is seen as a common complication, and prevalence is about 5-30%^{1,2}. Worldwide, in HIV patients chronic kidney disease has become epidemic, especially among the Black population.¹ Renal pathology is divided into glomerular, tubulointerstitial, and vascular diseases.

HIV-associated nephropathy (HIVAN) is a glomerular disease directly related to HIV infection, which is well established in North America, Africa, and Western Europe especially among the black population³. In HIV patients around 60% of renal biopsies show HIVAN in Western and African studies. HIVAN is a collapsing variant of focal glomerulosclerosis (FSGS) associated with microcystic dilatation in tubules and tubulointerstitial injury. It usually presents with rapidly progressing renal failure and proteinuria, It is associated with high mortality⁴. Due to the introduction of ART for all HIV patients, the incidence of HIVAN has decreased and the incidence of non-HIV-associated chronic kidney diseases (CKD) has increased⁵. Because of the high burden of kidney diseases in HIV-infected patients, the Infectious Diseases Society of America (IDSA) recommends screening for kidney disease using urinalysis and estimation of renal function⁶. These guidelines further recommend proteinuria assessment using quantitative methods to allow earlier identification of kidney disease. Renal biopsy is advocated wherever feasible, because the treatment options and prognosis are influenced by the actual histological diagnosis. While HIVAN has been reported consistently in Western studies, the prevalence in studies from Asia has been found to low/absent^{7,8}. The available studies from India differ strikingly, with some studies showing presence of HIVAN^{9,10,11}, whereas others reporting complete absence of this entity^{8,12,13}. With this perspective, the present study was carried out to elucidate the histological spectrum of renal disease in HIV patients from a tertiary care center from India. Kidney biopsies are

performed in HIV patients with proteinuria ≥ 1 g/day, to delineate the glomerular lesions including presence of possible HIVAN.

Aim

To study the clinical profile and renal histopathology in HIV patients presenting with kidney disease

Objectives

1. To study the spectrum of kidney diseases in HIV patients
2. To study the biochemical and other laboratory abnormalities and the need for renal biopsy in these patients

II. Materials And Methods

The present study was conducted among HIV patients who presented with renal disorder, were older than 18 years, admitted to the Department of Nephrology, King George Hospital, Visakhapatnam, during the period of April 2019 to December 2020.

Methodology:

- Study design: Cross-sectional study
- Study setting: Inpatient ward; Department of Nephrology, King George Hospital, Visakhapatnam.
- Duration of study: April 2019 to December 2020.
- Sample size: All patients who fulfilled the inclusion criteria and willing to give consent are enrolled in the study.

• Consent: Written informed consent is taken from each patient enrolled in the study.

Inclusion criteria: • Age above 18 yrs. • HIV/AIDS patients with renal disorder.

Exclusion criteria • Age below 18 yrs. • Known or newly diagnosed CKD. • Pregnancy. • Patients who were not willing to give consent for the study.

Method of data collection: Renal disorder was diagnosed by taking detailed clinical history and performing renal function tests. Patients were evaluated with baseline haematology and biochemistry. Duration of anti retroviral drugs is taken. Associated co-morbidities, interventions, treatment, progress and any significant event during the stay at the hospital. Urine examination, 24-hour urine protein, ANA, ANCA, C3, C4 are done. CD4 lymphocyte count is done for all patients at presentation. Ultrasound abdomen will be done. Renal biopsy is done in all patients with no contraindications, and biopsy subjected to light microscopy and immunofluorescence

Statistical analysis

Data is entered into Microsoft excel spreadsheet version 2013. Later exported to SPSS (statistical package for social science) version 17. Analysis is done in both Microsoft excel spreadsheet version 2013 and SPSS. Quantitative variables are described in the form of mean and standard deviation. Qualitative variables are described in the form of frequency and percentages. Tests of significance used are the independent sample ttest and Fisher's exact test. Odds ratio is used to estimate the strength of association. A p value of 0.05 or less is considered significant.

III. Results

From APRIL 2019 to DECEMBER 2020 a total of 30 patients with HIV/AIDS who presented with renal disorder are included in the study and renal biopsies done.

GENDER DISTRIBUTION

Male patients comprise of 60 % (n=18) of the study population, while female patients were 40% (n=12). Males were more common than females. ratio of male to female 1.5 : 1

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