e-ISSN: 0975-1556, p-ISSN:2820-2643
Available online on www.ijpcr.com
International Journal of Pharmaceutical and Clinical Research 2024; 16(6); 848-850
Original Research Article

To Assess the Influence of Renal Diseases in Individuals with HIV

Brajesh Kumar Suman[1], Shivendu[2], Manoj Kumar Chaudhary[3]

[1]Senior Resident, Department of General Medicine, IGIMS, Patna
[2]Senior Resident, Department of General Medicine, IGIMS, Patna
[3]Associate Professor, Department of General Medicine, IGIMS, Patna

Received: 05-04-2024 / Revised: 28-04-2024 / Accepted: 30-05-2024
Corresponding Author: Dr. Shivendu
Conflict of interest: Nil

Abstract:

Background and Objectives: Patients infected with human immunodefiency virus HIV is the etiologic agent of AIDS. It belongs to the family of human retroviruses (Retroviridae) and the subfamily of lentiviruses. The most common cause of HIV disease throughout the world, is HIV-1, which comprises several subtypes with different geographic distributions HIV-2 is originally confined to West Africa but few cases has been occurred in other parts of world. Four groups of HIV-1 havebeen defined.

Material and Methods: The study will be carried out on HIV positive patients attending ART centre, General medicine OPD, and those admitted inMedicine wards of IGIMS Patna, Bihar. For duration of one year.

Result: In this study, among those patients with renal dysfunction, 83.3% patients were on ART since less than 3 years. 16.7% patients were started on ART 3 to 6 years back. The influence of duration of antiretroviral therapy on risk of renal dysfunction was analyzed using One way ANOVA and Tukey pair wise analysis and found to be non-significant.

Conclusion: This study shows that there is no significant association between the regimen of HAART and the risk of renal dysfunction. This was contrary to the commonly available data47-57 which revealed that the choice of ART may have predilection for causing renal damage especially from NNRTI group like Tenofovir, which was found to cause renal toxicity. This finding needs to be reanalyzed by further continuation of the study.

Keywords: Impact, ART, Renal & HIV patient.

Introduction

Suppression of HIV replication and partial restoration ofimmune competence following administration of effective antiretroviral therapy has resulted in prolongation of survival of HIV infected individuals. HIV is the etiologic agent of AIDS. It belongs to the family of human retroviruses (Retroviridae) and the subfamily of lentiviruses. The most common cause of HIV disease throughout the world, is HIV-1, which comprises several subtypes with different geographic distributions. HIV-2 is originally confined to West Africa but few cases has been occurred in other parts of world. Four groups of HIV-1 have been defined. Group M (major) is responsible for most of the infections in the world. Group O (outlier) is a relatively rare viral form found originally in Cameroon, Gabon, and France. Group N was first identified in a Cameroonian woman with AIDS; very few group N isolates have been identified and sequenced. An additional human immunodeficiency virus, related to gorilla SIV and distinct from other HIV-1 groups, was identified in a Cameroonian woman in 2009 and proposed as group P.[1]Kidney disease has been commonly reported amongpatients infected with HIV. Among HIV-infected persons cared for at an outpatient infectious diseases clinic in the US from 2000 to 2002, the estimated incidence of renal failure was 5.9 cases per 100 person years. [1] Another study in a London clinic from 1998 to 2005 estimated the incidence of acute kidney injury among HIV-infectedoutpatients to be 2.7 per 100 person-years. Black race has been associated with kidney injury among both HIV- infected [2] and HIV-uninfected [3] persons, with HIV-associated nephropathy occurring almost exclusively among persons of African descent. In the United States, HIV disproportionately affects the Black population; in 2012, 41% of Americans living with HIV identified as Black. [4] Although the incidence of HIV-associated nephropathy has decreased in the era of ART, [5] the number of HIV infected persons with comorbidities associated with kidney disease,such as hypertension, has increased due, in part, to longer life expectancies. [6] Between 22% and 73% of patients in theprior studies of renal disease incidence were prescribed ART. As a greater proportion of patients are prescribed ART, updated estimates of renal disease among HIV- infected patients are needed.

Material and Methods: The study will be carried out on HIV positive patients attending ART centre, General medicine OPD, and those admitted in General medicine IGIMS Patna Bihar. for Duration of one year.

Inclusion Criteria: All HIV positive patients aged more than 18 years attending ART centre, General medicine OPD, and those admitted in Medicine wards of IGIMS Patna Bihar.

Exclusion Criteria

- Patients with preexisting chronic kidney diseases not related to HIV (renal disease due to Diabetes Mellitus,Systemic Hypertension, Collagen vascular diseases etc).
- Patients in acute/serious illness.
- Patients having confounding factors for proteinuria(such as heavy exercise, cardiac failure, hyperglycaemia, uncontrolled hypertension and urinary tract infection)
- Patients with multisystem diseases or malignancies.
- Pregnant ladies.
- Patients on nephrotoxic medications.

Results

Table 1: Relation between Duration of ART and renaldysfunction:

Duration of ART (years)	Serum Creatinine				Total
	> 1.5	%	< 1.5	%	
< 3 years	20	83.3%	186	81.9%	206
3 – 6 years	4	16.7%	36	15.9%	40
> 6 years	0	0	5	2.2%	5
Total	24	100%	227	100%	251

Table 2: One-way ANOVA: Renal dysfunction and ARTDuration

Duration of ART (Years)	N	Mean	SD	95%CI
< 3 years	206	0.7729	0.3545	(0.7242, 0.8217
3 – 6 years	40	0.7672	0.3773	0.6549, 0.8794
> 6 years	5	0.5360	0.1667	0.2225, 0.8495

Table 3: Tukey Pairwise Comparison: Renal dysfunction & ART Duration

Difference of levels	Difference of means	SE of Difference	95% CI	T-value	P -value
2 – 1	-0.0058	0.0621	-0.1512, 0.1396	- 0.09	0.995
3 – 1	-0.237	0.161	-0.614, 0.140	-1.47	0.305
3 – 2	-0.231	0.169	-0.627, 0.164	-1.37	0.358

P value – Non-significant

In this study, among those patients with renal dysfunction, 83.3% patients were on ART since less than 3 years. 16.7% patients were started on ART 3 to 6 years back. The influence of duration of antiretroviral therapy on risk of renal dysfunction was analyzed using One way ANOVA and Tukey pair wise analysis and found to be non significant.

Discussion

Proteinuria and or abnormal serum Creatinine was takenas renal dysfunction. In our study, 10.8% patients of the study population had elevated serum Creatinine and 10.6% patients had proteinuria. Prevalence of renal dysfunctionin our study was 14.3%. In the study done by Gupta et al [7], 13.8% patients of the study population had proteinuria and 3.4% patients had abnormal serum Creatinine. Prevalence of renal dysfunction in their study was 17.3%. In a study done by TM Han et al [8] on 615 HIV positive patients in South Africa, the prevalence of proteinuria was 6.17%. Crowley *et al* evaluating spot urine samples, reported prevalence of ≥1+ proteinuria in 22.4 per cent patients with prevalence of persistent proteinuria as 14 per cent [9]. Overt proteinuria has been encountered in 14-50 per cent of HIV/AIDS patients in various studies depending upon method of screening and patient population [10]. In our study 18 patients among those with renal dysfunction were having acute kidney injury and recovered normal renal function during the time period.

Conclusion

Renal disease represents an increasing cause of morbidity and mortality in HIV infected individuals who are surviving longer due to effective antiretroviral therapy. This study shows that there is no significant association between the regimen of HAART and the risk of renal dysfunction. This was contrary to the commonly available data47-57 which revealed that the choice of ART may havepredilection for causing renal damage especially from NNRTI group like Tenofovir, which was found to cause renal toxicity. This finding needs to be reanalyzed by

further continuation of the study.

References

1. WHO, UNAIDS and UNICEF: Global HIV/AIDS Responses- Epidemic update and health

sector progress towards universal access. Geneva: WHO; 2011.
2. NACO. Annual Report 2012-13.
3. UNAIDS. India: HIV and AIDS estimates 2013.
4. Selik RM, Byers RH Jr, Dworkin MS. Trends in diseases reported on U.S. death certificates that mentioned HIV infection, 19871999. J Acquir Immune Defic Syndr. 2002; 29:378.
5. Gupta SK, Eustace JA, Winston JA, Boydstun, II, Ahuja TS, Rodriguez RA, Tashima KT, Roland M, FranceschiniN, Palella FJ, Lennox JL, Klotman PE, Nachman SA, HallSD, Szczech LA. Guidelines for the management ofchronic kidney disease in HIV-infected patients: recommendations of the HIV Medicine Association of the Infectious Diseases Society of America. Clin Infect Dis. 2005; 40:1559-85.
6. Pardo V, Aldana M, Colton RM, et al. Glomerular lesions in the acquired immunodeficiency syndrome. Ann Intern Med. 1984; 101 :429.
7. Gupta et al: HIV associated renal diseases, Indian JMed Res 137, May 2013; 950-956.
8. 8.TM Han et al.: Proteinuria, renal diseases, and HIV infection, Kidney International. 2006; 69: 2243–2250.
9. Crowley ST, Cantwell B, Abu-Alfa A, Rigsby MO. Prevalence 21. of persistent proteinuria in HIV-infected outpatients and lack of correlation with viral load. Clin Nephrol 2001; 55: 1-6.
10. Varma PP, Prasher PK, Deshpande GU, Mani NS, Nema SK, Sayal SK. Spectrum of renal lesions in HIV patients. J Assoc Physicians India 2000; 48: 1151- 4.