CHANGING SPECTRUM OF RENAL DISEASES IN HIV

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INTRODUCTION

- Human immunodeficiency virus (HIV) infection is the global pandemic of our time.
- Nowadays, the classic kidney disease of HIV, HIVAN, has become less common with widespread use of HAART ; however, there has been an increase in the prevalence of HAART-induced AKI, CKD, proximal tubular dysfunction, crystalluria and urolithiasis.
- Burden of renal dysfunction varies 6-76%, high (76%) in ART naïve patients in Tanzania, 7-30% in India.
- There is Paucity of data from India.
- Prevention includes early screening , appropriate referral, prompt diagnosis and management

AIMS AND OBJECTIVES

- To screen for renal dysfunction in patients living with HIV on HAART therapy in Osmania Medical College and Hospital

MATERIALS AND METHODS

STUDY SITE – Osmania General Hospital, One of the oldest govt medical colleges in India, largest tertiary HAART center in Hyderabad under NACO, 3000-3500 HIV positive patients per month

STUDY DESIGN - Hospital based, investigator initiated, prospective, pilot study, approved by IEC

INCLUSION CRITERIA - HIV infected adults > 18 years; Patients on HAART > 6 months with > 95% adherence status

EXCLUSION CRITERIA - Pregnancy and CKD due to other causes, UTI, age < 18 years old

All patients were screened for **spot proteinuria** (using standard urine dipstick testing), **serum creatinine, 24 hours urine protein estimation**

Renal dysfunction was defined as any of the following;

- **AKI/CKD as per KDIGO**
- **RPRF**
- **NS or acute nephritis**
- **Microscopic hematuria or proteinuria of ≥1⁺ on urine dipstick (AUA),**
- **Glycosuria with normal blood glucose**
- Electrolyte abnormalities were also documented

INDICATIONS OF RENAL BIOPSY –

Nephrotic range proteinuria
Microscopic hematuria
Isolated hematuria
Nephrotic-nephritic syndrome
RPRF presentation
Routine statistical analysis done

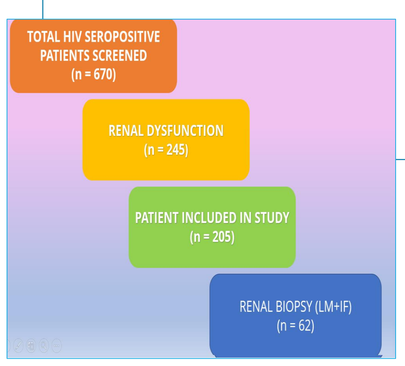

Figure 1. PATIENTS INCLUDED IN STUDY

Figure 2. MOST COMMON ART USED

RESULTS

- Majority of the patients were **males**(79.1%), having **secondary education**(43.4%), **married**(42.4%) and **employed** (65.8%). Majority lived in **urban** area (65.8%)
- **Mean age** of study population was 46.51 ± 10.8 years
- Presumed mode of disease acquisition was **sexual** in **70.2% and 31.7%** had their partners positive
- Mean CD4 and HIV viral load was **618 ± 303 cells/cmm and 7332 ± 28694 copies/ml** respectively
- Majority of patients(49.2%) were in **WHO clinical stage 1**; 14.2% of patients had coinfections with opportunistic infections (TB, Hepatitis B,C)
- Average time duration since initiation of HAART and screening was **3 ± 2.5 years**
- 75.12% patients were receiving **Tenofovir based ART** regimen as FDC ; Most common used – **TLD**
- 31.7% of patients had **hypertension**; 20.4% patients had **diabetes mellitus**
- 69.4% of patients has **renal dysfunction**
- Mean serum urea and creatinine values were **82 ± 23.94 mg/dl and 3.36 ± 1.67 mg/dl**
- Mean eGFR - **57.5 ± 24 ml/min/1.73m (CKD 3)**
- 51.2 % patients had UPCR 0.2-2
- 30.2% had serum creatinine 1.5-3 mg/dl, 25% had **more than 3 mg/dl**
- 3.5% had electrolyte abnormalities
- 42.9% had bilateral normal sized kidneys, 28.6% had ureteric calculi; **9.7% had moderate to severe HUN**

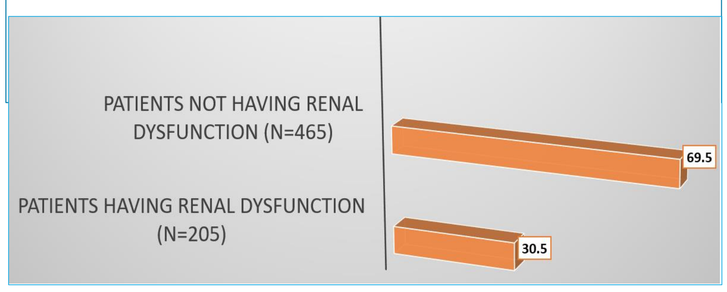

Figure 3. RENAL DYSFUNCTION IN STUDY POPULATION (n=670)

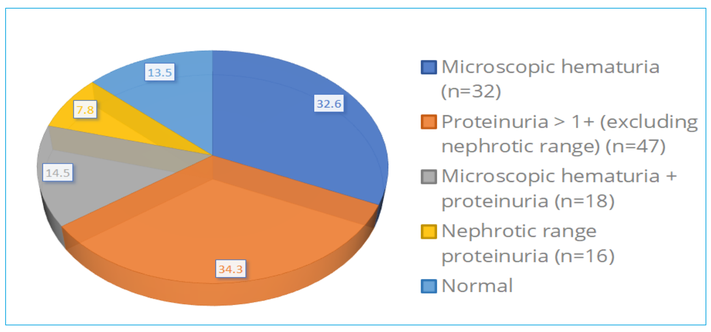

Figure 4. COMPLETE URINE EXAMINATION FINDINGS IN STUDY POPULATION (n=205)

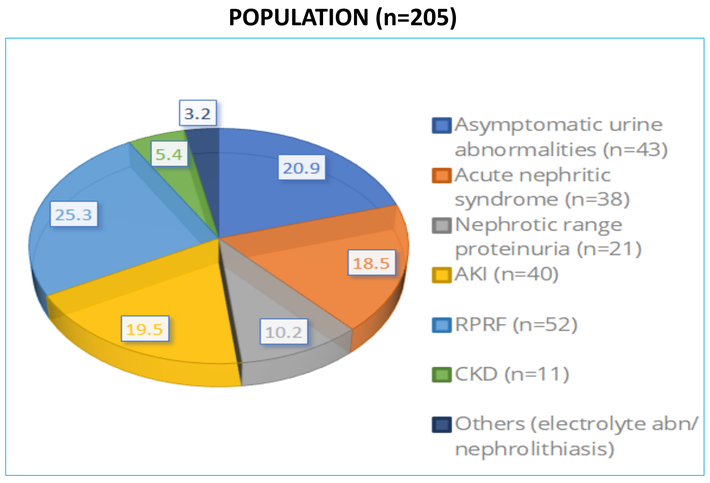

Figure 5. RENAL SYNDROMES IN STUDY POPULATION (n=205)

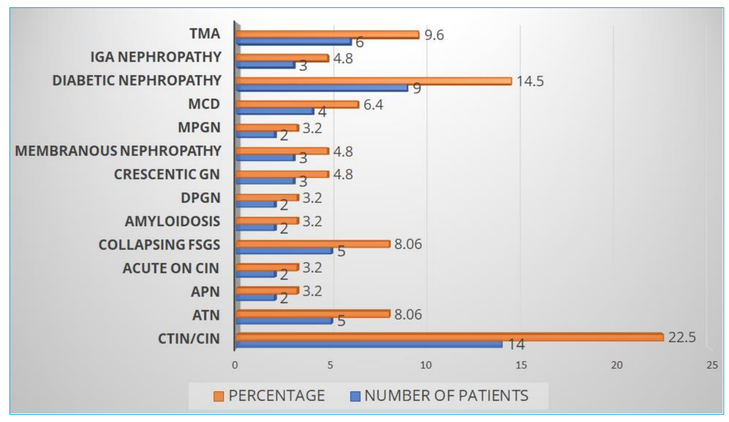

Chart 1. LIGHT MICROSCOPY FINDINGS

Histopathology	Asymptomatic urinary abnormalities	Acute nephritic syndrome	Nephrotic syndrome	RPRF	AKI	CKD
TMA (n=6)	3 (50%)	1	-	2	-	-
DIABETIC NEPHROPATHY (n=9)	3 (33.3%)	1	1	2 (22.2%)	1	1
MCD (n=4)	-	1	3 (75%)	-	-	-
COLLAPSING FSGS (n=5)	1 (20%)	1 (20%)	2 (40%)	1 (20%)	-	-
APN (n=2)	-	-	-	-	2	-
ATN (n=5)	-	-	-	3 (60%)	2	-
CTIN (n=14)	6 (42.8%)	1	-	3 (21.4%)	1	2 (21.4%)

Chart 2. CLINICAL SYNDROME AND HISTOLOGY

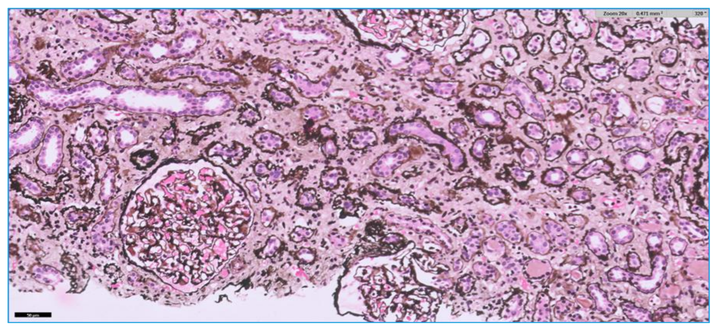

Figure 6. PAS stained LM FINDINGS OF CTIN

- 53.2% had **glomerular involvement**, 37% had **tubular involvement**, 9.6% had **vascular involvement**
- **Age less than 60 years, viral load less than 1000 copies/ml, diabetes** significantly corelate to renal dysfunction

DISCUSSION

Characteristics	Present study	Mwemezi et al[1] (Dar es Salaam, Tanzania)	Nyende et al[2] (Mulago, Uganda)	Prakash et al[3] (North India)	Chaterji et al[4] (Kolkata, West Bengal, India)
1. Number of patients screened	670	287	278	293	109
2. Prevalence of renal dysfunction	30.5%	25%	2.52%	46.4%	22.9% in ART naïve, 13.7% on ART
Renal Biopsy	14 patients had CIN/CTIN (22.5%), followed by 9 patients as diabetic nephropathy (14.5%)	Not done	Not done	GN in 12 (85.7%) (Isolated GN in 4 [28.5%] and GN mixed with chronic TIN in 8 [57.1%]) patients.	Not done

CONCLUSION

- **STRENGTH** - Screening in a tertiary care hospital; Inclusion of all patients irrespective of symptoms; 1st of its kind
- **LIMITATIONS** - Small sample size; ongoing study; UACR not done; Single center
- HIV is a high risk group; needs routine screening
- All varieties of glomerular and tubulointerstitial disorders can occur on histology.
- The best strategy to reduce its burden include frequent screening, early initiation of ART and adequate control of hypertension and diabetes.

Contact

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References

1. Mwemezi O, Ruggajo P, Mngumi J, et al. Renal Dysfunction among HIV-Infected Patients on Antiretroviral Therapy in Dar es Salaam, Tanzania: A Cross-Sectional Study. Int J Nephrol. 2020 Oct 8;2020:8378947.
2. Nyende L, Kalyesubula R, Sekasanvu E, et al. Prevalence of renal dysfunction among HIV infected patients receiving Tenofovir at Mulago: a cross-sectional study. BMC Nephrol. 2020;21(1):232. Published 2020 Jun 22.
3. Prakash J, Ganiger V, Prakash S, et al. Kidney disease in human immunodeficiency virus-seropositive patients: Absence of human immunodeficiency virus-associated nephropathy was a characteristic feature. Indian J Nephrol 2017;27:271-6.
4. Chatterji S, Mallik S, Pal D et al. A cross-sectional study on renal involvement among HIV-infected patients attending a tertiary care hospital in Kolkata. Trans R Soc Trop Med Hyg. 2018 Jun 1;112(6):294-299.