Original Article

A Retrospective Case Series Study on Drug Adherence Patterns and Associated Complications in PLHIV on HAART in a Tertiary Care Teaching Hospital

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ABSTRACT

Background: HIV/AIDS is reduced from a formerly lethal disease to a manageable chronic condition post advent of ART, the art era has promised new life standards and improving QOL of PLHIV, anyhow there are issues regarding adherence patterns where both patterns of adherence come with certain complications. **Objectives:** To retrospectively analyze for ADRs that are due to Antiretrovirals. To study the most prevalent reasons behind admission to hospital in PLHIV. To study mean age and inter-age prevalence of OIs and Drug-induced manifestations in PLHIV. To provide a database aiding in framing policies for the betterment of PLHIV. To synthesize results that can improve the QOL of PLHIV. **Materials and Methods:** We searched for all case files from 2018 to 2020 to screen for reasons why PLHIVs were admitted to a tertiary care teaching hospital and then looked into Google Scholar, Pubmed, etc. with keywords such as HIV, PLHIV, Complications of HAART, and many such to study the underlying reasons for the outcome seeking intervention. We also analyzed prescription patterns in the meanwhile to arrive at conclusions about various complications and modalities of treatment for the same. **Results and Conclusion:** Anemia is seen to be very prevalent amongst PLHIV accounting for about 54% of the population, Hepatotoxicity, Lipodystrophy, and an array of metabolic disorders can be linked to Drugs, and outcomes which were rare and difficult to manage were usually due to the nonadherent pattern. Although new incidences of Cranial lesions are being reported research in this direction is quasistatic post 90's. The most common drugs that cause ADRs belong to the class of NNRTIs followed by protease inhibitors. Although new novel drugs are available, their prescription is almost not seen. And more awareness is needed in this regard.

Keywords: HIV, AIDS, HAART, Adverse drug reaction, PLHIV, QOL.

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INTRODUCTION

ART adherence enhancing interventions have been conducted over the past few years, but these studies have often been limited to particular interventions, populations, or settings. To inform the evidence base for the WHO consolidated guidelines on the Use Antiretroviral Drugs for Treating and Preventing HIV infection.[1]

Very high levels of adherence (>95%) are required for ART to be effective in the long term and to prevent the emergence of resistant viral strains. Poor adherence to ART can cause drug resistance, higher mortality rates, lower rates of increase in CD4 cell count, lower rates of undetectable viral load, lower therapeutic success, the emergence of OIs, and increased hospitalization.

In a study conducted by Arkapal Bandopadhyay *et al.* (2019) out of 163 enrolled participants, only 152 completed the study. And during the study, 94 patients reported at least one ADR and 31.6% reported nonadherence. The most common reason was forgetting (21.8%) followed by fear of

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ADR (18.3%). It was seen that 32, and 2% of patients missed at least one dose in a week. A global study showed that drug nonadherence was mostly linked to drug toxicity and side effects. An Indian study also showed that lack of social support and reminders from family negatively influenced adherence. 100% adherence trends were seen in older patients, male gender, those from larger families, those who had a defining illness, those taking fewer tablets, and without food with previous AIDS restrictions Commonest side-effects causing non-adherence were metabolic reasons (66%) and GI symptoms (50%). No trends were seen for education level, family income, distance traveled to the clinic, time since diagnosis, or time on ART. Regular attendance for follow-up was statistically significant for 100% lifetime adherence. Positive trends were seen in those in larger families, older, those who had AIDS-defining illness, simple regimes, and without side effects. Education, income, distance traveled and length of time diagnosed or treated had no effect on adherence;[2] After seeing the results of these and many more such research, we planned to run a case series study to determine if results are repeated and to screen for outcomes in order of commonest to rare and relate them to either an outcome of drug or disease (OI).

OBJECTIVES

- To retrospectively analyze for ADRs that are due to Antiretrovirals.
- To study the most prevalent reasons behind admission to hospital in PLHIV.
- To study mean age and inter-age prevalence of OIs and Drug-induced manifestations in PLHIV.
- To provide a database aiding in framing policies for the betterment of PLHIV.
- To synthesize results that can improve the QOL of PLHIV.

MATERIALS AND METHODS

This retrospective case series was done in HSK hospital and research center, Bagalkot, the essential ethical needs were met for accessing all medical records from January 2018 till December 2020 to screen for records which are HIV positive and have history of being of HAART. Personal data of the patient like I.P Number, place of residence, and name were safeguarded and no breach to privacy was done.

During the phase of study, we analyzed all case records from 2018 -2020 and 150 case records met our inclusion criteria.

Further studies on pattern of adherence, reason for admission, aetiology of presenting illness, possible pathophysiology, and causality assessment for suspected drug induced manifestations were done.

Statistical analysis was done and the data we used percentages and proportions to arrive at comparative results and the synthesis of results.

Inclusion Criteria

1. All medical records, case sheets with at least one ART regimen with H/O RVD
2. In-Patients of both sex and age and on ART for HIV infection
3. Any ADR that has occurred from taking ART medicine for RVD

Exclusion Criteria

1. ART medication for prophylactic reasons.
2. De novo cases of HIV with no history of ART medication.
3. ART for causes other than HIV.

Age criteria: as per ICH tripartite guidelines.

OBSERVATION AND RESULTS

The following results are obtained from the study conducted.

Prevalence and Prevalence Percentage of Outcomes

From the data from Table 1, it is evident that a majority of the prevalent population on HAART suffer from Anemia of various types making up 23.37% followed by Hepatitis which was prevalent among 11.63% of study subjects. Almost 9.74% of the population has no complications at all. Pulmonary tuberculosis was seen in 5.19% of the prevalent population. Encephalitis, Depression and Urinary tract infections contributed to about 3.89% of total outcomes each. Hyperlipidemia and Gastritis were prevalent amongst 3.24% of the population and Lipodystrophy, LRTI, and Stroke was prevalent among 2.59% of the population. Pneumonia was seen in 1.94%

Table 1: Prevalence of outcomes.

Outcome	No. of subjects affected	Prevalence %
Acute kidney injury	02	1.29
Acute urticaria	01	0.64
Candidiasis	36	23.37
Appendicitis	02	1.29
Candidiasis	01	0.64
Cholecystitis	01	0.6
Depression	06	3.89
Encephalitis	06	3.89
Gastritis	05	3.24
Hepatitis	17	11.63
Herpes	02	1.29
Hydronephrosis	01	0.4
Hyperlipidemia	05	3.24
Immune reconstitution syndrome	01	0.64
Influenza-like illness	01	0.64
Intracranial space lesion	02	1.29
Lipodystrophy	04	2.59
Lymphocyopenia	01	0.64
Nil	15	9.74
Orbital cellulitis	01	0.64
Otitis media	01	0.64
Pancreatitis	03	1.94
Pelvic inflammatory disease	02	1.29
Pneumonia	02	1.29
Psoriasis	01	0.64
Pulmonary tuberculosis	08	5.19
Pyrexia of unknown origin	01	0.64
Referred to higher center	02	1.29
Renal calculi	02	1.29
Stemi	01	0.64
Stroke	04	2.59
Sweets syndrome	01	0.64
Tinea carporis	01	0.64
Uncontrolled diabetes	01	0.64
URTI	01	0.64
UTI	06	3.89
Vertigo	02	1.29

followed by Acute kidney injury, Appendicitis, Herpes, Intracranial space lesion, Pelvic inflammatory disease, Renal calculi, and Vertigo which were seen to be prevalent among 1.29% of the population and a similar proportion was referred to higher center. Other minor outcomes with a prevalence percentage of 0.64% each were Acute urticaria, Candidiasis, Cholecystitis, Hydronephrosis, Influenza-like illness, Lymphocytopenia, Orbital cellulitis, ST elevated Myocardial Infarction, Sweet's syndrome, Tinea corporis infection, Uncontrolled diabetes, and Upper Respiratory tract infection.

Apart from anemia alone as in Table 1, Anemia with other major and minor complications was also inevitably seen which accounted for almost 31.16% of prevalent outcomes which makes up the overall anemic outcome to be 54.54%.

Epidemiology and Distribution

Among 154 prevalent subjects, about 44.8% were treated in the medical department. Followed by that about 12.98% of patients were treated at the Surgery dept. and almost 7.14% of patients were treated at Neurology and Emergency wards. Orthopedics and pediatric wards treated about 5.19% of patients each. About 3.89% of patients were seen at OBG wards and 3.24% at the Dermatology dept. About 1.94% of patients were treated at the Psychiatry dept. and 1.29% had Ophthalmological manifestation. Dept. of Cardiology, Emergency ICU, and ENT had a share of 0.64% of patients each. Among various age groups studied, Adults had the highest prevalence of outcomes which was about 48.05%, followed by older adults accounting for about 25.32% of the prevalent population with outcomes.

Following suit were the elderly population with 11.03% and then the adolescent population with 3.4% of prevalence. Bottom of the line were Children making up just about 1.94% of the prevalent population. Among children with a total population of 3, 66.66% were males and 33.33% were females, and among adolescent population groups with a total population of 5, all 100% were males. Out of 16 young adults, 68.75% were males and 31.25% were females. Adults made up the maximum fraction of the prevalent population totaling a strength of 74% almost similar with just slightly varying distribution patterns, males made up 51.35% and females contributed 48.64% of the total distribution.

Among 39 older adult populations, 58.97% were males and 41.02% were females.

17 elderly cases were noted of which 58.82% were males and 41.176% were females.

Evaluating overall gender prevalence about 57.79% were males and 42.201% were females.

Prevalence of Co-Infections among study populations

Among children lower respiratory tract infection was the most common outcome accounting for about 66.66% and the rest of the cases had no outcome of interest at all. Among adolescents, hepatitis was most commonly seen and made up 40% of prevalent

outcomes. Anemia, Lymphocytopenia, and Pulmonary Tuberculosis accounted for about 20% of each of the prevalent outcomes. Among the young adult population, Anemia was the most prevalent outcome accounting for about 43.75% of the population. Anemia with other complications and Gastritis was prevalent among 12.5% of the population. Other prevalent complications included Upper respiratory tract infection, Otitis media, Hepatitis, Psoriasis, and Urinary tract infection which were prevalent among 6.25% of the population each. Among the adult population, the most prevalent outcome was anemia which was seen in about 16.21% of the population, followed by anemia was hepatitis which made up almost 14% prevalent population. Prevalence of T.B and No outcome were seen in 8.10% of patients. Depression was prevalent in 5.40% of the population. Prevalent outcomes of Herpes and pancreatitis were about 4.05% each. Appendicitis, Intracranial space lesion, Stroke, Pelvic inflammatory disease, Gastritis, Lower respiratory tract infection, Vertigo, and Urinary tract infection accounted for 2.70% of prevalent cases. Other prevalent outcomes of which each accounted for 1.35% included Acute kidney injury, Acute urticaria, Candidiasis, Immune reconstitution syndrome, Influenza-like illness, lipodystrophy, Uncontrolled Diabetes, Renal calculi, Tenia corporis infection, and Herpes. Among the older adult population, 14.28% had Anemia and about 6.122% had anemia with associated complications, the similar prevalence rate of 6.122% was shared by outcomes such as Lipodystrophy, Hepatitis, Pneumonia, and Pulmonary T.B., Similar fraction of the population had no outcome due to ART adverse effects. Depression was seen in 4.08% of prevalent cases. Following the trend outcomes such as Hydronephrosis, Urinary tract infection, Gastritis, Hyperlipidemia, ST Elevated Myocardial Infarction, Renal calculi, Pyrexia of unknown origin, sweets syndrome, Herpes, and orbital cellulitis were prevalent among 2.04 % of the population. And a similar fraction of 2.04% of the population was referred to a higher center. Surprisingly among elderly patients, 29.41% of the prevalent population had no outcome of interest due to ART, anyhow 17.76% of the prevalent population did suffer from Anemia. The second most prevalent outcome was Urinary tract infection with an 11.76% prevalence rate which is as same as the prevalence rate of stroke among the elderly population on ART. Anemia with other outcomes had a prevalence rate of about 5.88% and the same rate of prevalence was seen in outcomes such as Encephalitis, Cholecystitis, and Hyperlipidemia. A similar fraction of about 5.88% of the prevalent population was referred to higher centers.

Regimen Distribution

Among various regimens adopted for treatment, Among the array regimens, the TLE regimen was the most commonly prescribed regimen which was seen to be prevalent among 70.77% of the population. ZLN regimen was prescribed for 23.37%. 3.89% of the population shifted from ZLN back to TLE and 1.55% of the population was prescribed ZLN by cessation of TLE.

Age Regimen Distribution

Of 3 children receiving treatment, 66.66% received TLE and 33.33% received ZLN.

In adolescent age groups, almost 100% were treated with TLE alone. In the young adult population, 81.25% received TLE and 18.75% were treated with the ZLN regimen. Among adults, 68.91% received a TLE regimen and 20.27% were on the ZLN regimen, about 2.70% shifted from TLE-ZLN and 8.108% shifted from ZLN back to TLE. In the older adult population, 74.35% were on the TLE regimen and 23.07% were on the ZLN regimen. A small fraction of about 2.56% wasn't aware of the regimen on which they are. In the elderly population, about 58.82% were on TLE and 41.17% received the ZLN regimen.

Regimen-Gender Distribution

While studying the distribution of Regimens based on Gender, it was seen that amongst 109 individuals receiving TLE, 64 (54.71%) were males and 45 (41.284%) were females. Whilst in the population receiving the ZLN regimen, wherein the total number of individuals is 36, 22(61.11%) were males and 14 (38.88%) were females. 100% of those shifting from TLE to ZLN were males and those shifting from ZLN to TLE were 100% of Females. 1 male among the population wasn't aware of what regimen he is taking.

Adherence Prevalence Assessment

While analyzing adherence prevalence, it was found that a majority of patients about 59.74% were adherent, and 17.53% were non adherent. 14.93% of prevalent cases had a poor adherent pattern and 7.79% were fairly adherent. Study on regimen specific patterns showed that, out of 109 subjects taking TLE, 64 individuals (58.71%) were adherent and 17 individuals (15.59%) were poorly adherent. 20 patients (18.34%) were non adherent and 8 individuals (7.339%) were Fairly adherent. Analyzing ZLN adherence, among 36 prevalent cases 26 (72.22%) were adherent, 6 individuals (16.66%) were poorly adherent and 4 individuals (11.11%) were non adherent.

Of patients who shifted from TLE or ZLN, we saw a 100% adherence. About 6 patients had a reverse trend of ZLN to TLE of which all showed a poor adherence pattern.

we also found that the mean duration for an outcome from the TLE regimen was to be 5.05 months, ZLN showed results in a mean duration of 6.31months and those shifted from TLE to ZLN showed up on a mean duration of 6 months and those on ZLE shifting to TLE had a mean outcome duration of 3 months

Regimen Specific Outcome

Due to the TLE Regimen.

Outcome	Prevalence frequency	Prevalence %
Acute kidney injury	2	1.83%
Acute urticaria	1	0.91%
Anemia	25	22%
Anemia with Dengue	1	0.91%
Anemia with Pancytopenia	2	1.83
Appendicitis	2	1.83
Candidiasis	1	0.91
Cholecystitis	1	0.91
Depression	6	5.60
Encephalitis	1	0.91
Gastritis	3	2.75
Hepatitis	11	10.09
Herpes	1	0.91
Hydronephrosis	1	0.91
Hyperlipidemia	3	2.75
Influenza-like illness	1	0.91
Intracranial space lesion	2	1.83
IRIS	1	0.91
Lipodystrophy	4	3.66
LRTI	3	2.75
Lymphocytopenia	1	0.91
NIL	10	9.17
Pulmonary T. B	6	5.50
Pancreatitis	2	1.83
Pelvic inflammatory disease	2	1.83
Pneumonia	1	1.83
Psoriasis	1	0.91
Pyrexia of Unknown Origin	1	0.91
Referred	2	1.83
Stroke	1	0.91
Sweets syndrome	1	0.91
URTI	1	0.91
UTI	6	5.50
STEMI	1	0.91
Renal calculi	1	0.91

Due to the ZLN Regimen.

Outcome	Prevalence	Prevalence %
Anemia	2	5.55
Anemia with Pancytopenia	3	8.33
Encephalitis	4	11.11
Gastritis	3	5.55
Hepatitis	4	11.11
Lower respiratory tract Infection	1	2.77
Nil	5	13.88
Orbital cellulitis	1	2.77
Otitis Media	1	2.77
Pancreatitis	1	2.77
Pneumonia	1	2.77
Renal calculi	1	2.77
Stroke	3	8.33
Uncontrolled Diabetes	1	2.77

Upon shift from TLE-ZLN Regimen.

Outcome	Prevalence	Prevalence%
Hepatitis	2	100%

Upon shift from ZLN-TLE Regimen.

Outcome	Prevalence	Prevalence %
HyperLipidemia	2	33.33
Pulmonary TB	2	33.33
Vertigo	2	33.33

Of many outcomes from patients on the TLE regimen, Anemia was most prevalent with a prevalence rate of 22%. The second most common outcome was that of Hepatitis with a prevalence rate of 10.09%, The next in the trend were outcomes such as depression, Pulmonary T.B, and Urinary tract infection with a prevalence rate of 5.50%. Lipodystrophy was seen in 3.66% of patients. Following the trend, outcomes such as Gastritis, Hyperlipidemia, and LRTI, were prevalent with a prevalence rate of 2.75. A prevalence rate of 1.83 was seen with outcomes viz, Acute kidney injury, Anemia with pancytopenia, Intracranial space lesion, Pancreatitis, and Pelvic inflammatory disease, A similar fraction of patients were referred to a higher center for further management.

The least prevalent outcomes were acute urticaria, Anemia with Dengue, Candidiasis, Cholecystitis, Encephalitis, Herpes, Hydronephrosis, Influenza-like illness, Inflammatory reconstitution syndrome,

Pneumonia, Psoriasis, Pyrexia of unknown origin, Renal calculi, S.T elevated myocardial infarction, Stroke, Sweet's syndrome, and Upper respiratory tract infection with a prevalence rate of mere 0.91%.

Amongst 36 patients receiving ZLN treatment, a majority of about 13.88%of individuals had no outcome of interest and had some orthopedic or surgical intervention with a controlled viral load and no associated complications. However, Hepatitis with a prevalence rate of about 11.11% was more prevalent than Anemia with pancytopenia and Stroke which was prevalent among 8.33% of the population followed by Anemia and Gastritis which had a prevalence rate of about 5.55%. Other outcomes were those of Herpes, LRTI, Orbital Cellulitis, Otitis media, Pancreatitis, Renal calculi, and Uncontrolled Diabetes. With a prevalence rate of 2.77%

Amongst those who shifted from the TLE regimen to ZLN, Hepatitis was seen as prevalent in 100% of cases.

Six Patients restarted TLE from the ZLN regimen and outcomes such as Hyperlipidemia, Pulmonary TB, and Vertigo were seen at an equal prevalence of 33.333%.

DISCUSSION AND CONCLUSION

Adverse effects are common in patients taking antiretroviral agents. Of the over 1,000 patients who had received potent antiretroviral treatment in the Swiss HIV Cohort Study, 47% and 27% developed clinical and laboratory adverse events.[3]

Adverse effects or drug toxicities are the most common reasons for switching or discontinuing antiretroviral therapy.

Studies suggest both TLE and ZLN are equally potent, but TLE has a lesser incidence of adverse outcomes.[4]

Outcomes in TLE were generally predictable and those in ZLN were not so commonly seen and the same was also reported by Krishnan and Sajeeth.[5]

Differences in gender specific distribution can be linked to multiple factors such as body mass index, fat composition, drug susceptibility, hormonal effects, or genetic constitutional differences on the levels of various enzymes although the same has not been proven conclusively.[6,7]

In our study we found hepatitis was more common in patients receiving ZLN therapy rather than other gastro enterological manifestations which is in contrast with studies done by Kuamri *et al.*[8]

Many factors predispose HIV-infected patients to adverse effects. Firstly, HIV is becoming a chronic disease while antiretroviral agents are used for longer periods. Long-term toxicities are increasingly recognized,[9] which include such conditions as lipodystrophy and hyperlipidemia. Secondly, HIV patients may have comorbid conditions or diseases (e.g., alcoholism, diabetes, or hepatitis co-infection may increase the risk of hepatotoxicity). our study also revealed that Combination and concurrent ART medications may result in overlapping toxicities, while drug interactions may lead to dose-related toxicities which were insync with studies by Barrette M *et al.*[10]

Furthermore, HIV-infected patients have systemic glutathione deficiency and reduced capacity to scavenge toxic metabolites[11] which further makes them liable to have more ADRs.

Although the primary goal of antiretroviral therapy is potent and durable viral suppression, it is equally important to select a regimen that is best tolerated with minimal toxicities.

The major prevalent adverse outcomes due to HAART drugs were Anaemia, Hepatotoxicity (Hepatitis), Lipodystrophy, Hyperlipidaemia, and an array of metabolic disturbances.

However, apart from drug-induced disorders, there were significant diseases that were manifestations of HIV infections, although some opportunistic infections were very common some rare outcomes such as sweets syndrome were seen too.

Upon studying the prevailing outcomes and adherence relationships, we have found that rare and difficult to manage outcomes were usually linked with poor or even nonadherent patterns, whereas outcomes due to Adherence were usually common, detectable, and easily treatable.[11]

Our study points out the need for active vigilance and screening followed by active treatment for anemia.

We recommend the addition of iron supplements and encourage patients to have a more patient-prescriber, patient-counselor relationship.

Although a majority of the study population seems to be adherent it is still far behind the target of more than 80% of the adherent population which calls for more interventions to improve adherence.

Retrospective nature remains to be a limitation of our study, we have derived data based on entries done in inpatient charts rather than by direct patient contact, a well-planned prospective study with stringent inclusion and exclusion criteria could better depict incidence and prevalence. A continued follow-up could have further enabled us to arrive at a better understanding.

From the findings of our study, we conclude that although HIV infection has become a chronic manageable illness since the advent of HAART, adverse outcomes due to drugs and disease manifestations are very much prevalent. Patient education to aid in the early detection of symptoms of manifestations could help in easing further management.

Though there are multiple other ART combinations available, the most commonly used were TLE and ZLN regimens in almost all cases.

Most prevalent ADRs were due to NRTIs such as Lamivudine/ Zidovudine,[12] this may be also because these are the most commonly used drugs, and each patient received at least one of the drugs. Regular screening of ARVs for their hepatotoxicity is needed as we can observe that hepatotoxic manifestations were seen in patients irrespective of their regimen.

A majority of subjects were men, this suggests that women are either not getting screened and treated in time or are simply hesitant and negligent, more awareness is needed in this perspective.

Anemia was prevalent in about 54% of the population which suggests a need for more vigilant management of it. No significant research was carried out on the Neurological manifestation of the disease after the late 90s, we would hereby stress the need for the same.

The prevalence of outcomes indicates that there must be a potential patient-counselor barrier in aspects of adherence, knowledge of drugs, and expected outcomes for which an effective medium needs to be in place. Clinical pharmacists can be a better mediator in such scenarios.

An accountable no. of outcomes can be credited to the fact that necessary dietary requirements might not have been met.

Apart from anemia Hepatotoxicity is a concern that needs to be addressed. We have observed ARVs to be potentially hepatotoxic and can lead to alterations in Hepatic enzyme levels. Timely screening and assessment may help prevent it.

Nephrotoxicity is not very prominent in our study suggesting further research in this arena.

Dermatological manifestations were majorly due to non-adherent and underlying pathological issues which would trace their roots to the immunocompromised state arising from non/poor adherence.

Inclusivity and familial support are to be encouraged to combat depression.

Rigorous vigilance for rare opportunistic infections and manifestations is still to be encouraged.

More research is to be encouraged towards arriving at the root causes of outcomes that had little literature available.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

ADR: Adverse Drug Reaction; **AIDS:** Acquired immune deficiency disorder; **ARV:** Anti Retroviral; **cART:** Combinatorial Antiretroviral Therapy; **GI:** Gastro-Intestinal; **HAART:** Highly Active Antiretroviral Therapy; **H/O:** History Of; **HIV:** Human Immuno Virus; **IRIS:** Immune reconstitution inflammatory syndrome; **LRTI:** Lower Respiratory Tract Infection; **NNRTI:** Nucleoside Non-reverse Transcriptase Inhibitor; **NRTI:** Nucleoside Reverse Transcriptase Inhibitor; **OIs:** Opportunistic infections; **PLHIV:** People Living with HIV; **QOL:** Quality of Living; **RVD:** Retroviral Disease; **STEMI:** ST Elevated Myocardial Infarction; **TLE:** Tenofovir, Lamivudine Effavirenz; **URTI:** Upper Respiratory tract Infection; **UTI:** Urinary Tract Infection; **WHO:** World Health Organisation; **ZLN:** Zidovudine Lamivudine Neverapine.

SUMMARY

HAART has turned potentially lethal HIV infection into a chronic manageable disorder that can not only improve QOL but can also have life-prolonging effects and Adherence remains the key factor that contributes to

the positive effects of ART. Even though Adherent some PLHIV develop manifestations and complications that can cause trouble in day to day life of PLHIV and some may even need to be treated in a tertiary care hospital. Our research aimed at screening for manifestations and complications that need significant medical intervention for patient betterment. Our study found that Anemia and anemic complications contribute to a major spectrum of intervention requiring manifestations followed by Hepatic and other Metabolic and Physiological manifestations. Though there are many established adverse outcomes in PLHIV on HAART it was seen that no significant changes in therapy/ Therapeutic modality were applied suggesting a need for active and more improved pharmacovigilance in this field. Our study points out voids in the therapeutic implementation of ART which can be filled by clinical staff trained in vigilance and capable of making decisions (Preferably a clinical pharmacist) that can be life-saving and can improve the QOL of PLHIV.

Limitations and further recommendations

This was a retrospective study and there can be a little recall bias, we would recommend running a prospective study in the future with added interventions to improve the QOL of PLHIV to a better level.

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