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N Am J Med Sci. 2011 November; 3(11): 499-502.
doi: [10.4297/najms.2011.3499](https://doi.org/10.4297/najms.2011.3499)

PMCID: PMC3271405

Management of common adverse effects in the era of highly active antiretroviral therapy in south east Ethiopia

[Sadikalmahdi Hussen Abdella](#), [Nasir Tajure Wabe](#), and [Elias Ali Yesuf](#)

Department of Pharmacy, College of Public Health and Medical Science, Jimma University, Jimma, Oromia, Ethiopia.

Correspondence to: Sadikalmahdi H Abdella, Jimma University, P.O. Box: 2511480, Jimma, Ethiopia. Tel.: 251 911 545 735, Email: sadhussen@yahoo.com

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Abstract

Background:

The combination of antiretroviral therapy is the corner stone of management of patients with human immune deficiency virus infection. Although antiretroviral therapy can reduce viral load to undetectable level, improve the immunity and prolong survival of patients, antiretroviral drugs are associated with many adverse effects that may be severe and affect patient adherence and quality of life.

Aims:

The aim of this study was to assess management strategies under taken in patient's experienced common adverse effects of highly active antiretroviral therapy in Goba Hospital antiretroviral clinic.

Patients and Methods:

A cross sectional study of patient record chart of patients who had follow-up during data collection period was done followed by patient interview. Data was filled on well structured questionnaire and analyzed using SPSS for window version 16.0.

Results:

The common adverse effects were Rash (48.8%), Peripheral neuropathy (36.9%) and Anemia (20.24%). The rate of management was 39.3%. Pyridoxine (36.8%) was commonly prescribed drug for management of Peripheral neuropathy. Chlorphenarimine gel and Iron gluconate were common drugs for management of Rash and Anemia respectively. Use of traditional healers (57.7%) was leading reason for non-management.

Conclusion:

Rate of management for common adverse effect is low. Education should be given on adverse effects for patients.

Keywords: Adverse effects, Highly active antiretroviral therapy, Goba, management

Introduction



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posed an enormous challenge worldwide since the recognition of 40 million and more than 30 million have died due to AIDS. 25 million were affected by the epidemic. In Ethiopia more than 1.7 million people have a national adult prevalence rate of 4.7%^[1,2].

The combination of antiretroviral therapy (ART) or highly active antiretroviral therapy is corner stone of management of patients with HIV infection. The availability of HAART has resulted in dramatic declines in morbidity and mortality in patients infected with HIV^[3]. Current ART regimens are capable of reducing viral load to undetectable level, with a consequent increase in T-lymphocyte, CD4+ counts and reduction in development of opportunist infection. Hence a substantial reduction in HIV associated morbidity and mortality can be attained^[4-6].

Several cohort studies have suggested that toxic effects are a common reason for changing ART. Investigators monitoring an Italian cohort of HIV-infected patients whose ART regimens were NNRTIS based. It was founded that clinical drugs toxicity, which occurred in 18% of patients starting Nevirapine based regimen and in 10% of patients starting an Efavirenz bases regimen was the most common reason for changing an initial ART regimen^[7]. Hyper sensitivity (Rash) was the most common reason for discontinuing of Nevirapine based regimen (12%) and central nervous system toxicity was the most common reason for discontinuing an Efavirenz based regimen (5%). Peripheral neuropathy was also common adverse effect among patients on ART^[8,9].

Data from the AIDS clinical trials group showed that the incidence of anemia and neutropenia associated with zidovudine ranged from 1% to 31%, depending on the stage of disease and dose (in most of these early studies, dosage was 1200-1500 mg/d)^[10]. In one study in USA treatment of Stavudine induced Peripheral neuropathy includes agents such as Tricyclic Antidepressants such as Amitriptyline, Desipramine or Noritriptyline. Anticonvulsants such as Carbamazepine and Phenytoin may also relieve symptomatic neuropathic pain. Other agents that received attention according to this study were recombinant nerve growth factors^[8]. Effective treatment of HIV infection requires the use of there or more drug regimens that are complicated and commonly associated with adverse effects and adverse drug interactions. This makes compliance difficult and can result in treatment failure, development of resistance and loss of future treatment option^[11].

This study will show the scope of the problem in the study area and information gathered from this study will provide baseline data for further study. Furthermore, this study will provide baseline data to assist policy makers in developing appropriate evidence-based strategies to promote management of common adverse effects. The aim of this study was to assess management strategies under taken in patients experiencing common adverse effects of HAART in Goba Hospital ART clinic.

Patients and Methods

Study Setting The study was conducted in Goba Hospital ART clinic. Goba hospital is one of the two hospitals in Bale zone. It is 445KM away from Addis Ababa. The hospital has four main departments: Internal medicine, Pediatrics, Surgery and Obstetrics and Gynecology. The study was conducted from January 21 to Mar 28, 2009.

Study design Two methodological approaches were adopted. The first phase was a cross sectional study of patient record chart of patients who had follow-up during data collection period in Goba Hospital. All patients who had follow-up during data collection period and who developed adverse effect were included in the study. Accordingly, 84 patients' who attended the ART Clinic during the study period were included in the study.

Data were collected by well structured pre-tested questionnaire which was filled carefully by principal



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information about socio demographic characteristics (age, sex, al information, management strategies and reason for

erview of consecutive HIV/AIDS patients who visit the ART clinic during the same day of the study period. The interviews were conducted with a pretested questionnaire on 84 patients.

Data analysis The validity of the questionnaires was assessed through in-depth discussion with experienced pharmacist working in College of Public Health and Medical Science of Jimma University. The collected data was cleared, categorized, and coded. All data collected were then analyzed using the Statistical Package for the Social Sciences (SPSS), version 16.0 software.

Ethics A formal letter written from school of pharmacy, Jimma University to Student Research Program (SRP) and permission was obtained and given to registrar office of the university. Consent was obtained from the respondents and brief explanation of aim of study was provided with the questionnaire. Only those who volunteered were included in the study. Strict confidentiality was assured through anonymous recording and coding of questionnaires and placed in safe place.

Result

A total of 84 patients who were on follow up during the data collection program and who developed adverse effects after they started ART were included in the study. The demographic characteristics of the study population showed that, large proportion of participants (57.15%) were females, 88% in the age category of 18-49 years. Most of the patients (65.48%) had body mass index greater than 1.8 ([Table 1](#)).

Regarding occupational status of respondents included in this study, most of the respondents were house wife (30.95%) followed by governmental employee (21.43%). Most of the respondents in this study had monthly income of above 720 birr (64.28%) the rest 35.72% of the respondents had monthly income below 720 birr ([Figure 1](#)).

In study conducted in Goba Hospital ART clinic half of the respondents (50%) had initial CD4⁺ count between 150-200, while 30.95% of the patients had CD4⁺ cell count in the range of 100-150, 15.48% had CD4⁺ level between 50-100 and patients that had CD4⁺ cell count less that 50 were 3.57%.

Regarding initial ART regimen, significant proportion of patient initiated ART with D4T (30)/3TC/NVP (47.6%) and D4T (40)/3Tc/NVP (22.6%) while D4T (40)/3TC/EFV (1.2%) is the least regimen initiated by the patients. In this study it was found that 77.45% of respondents adhered to their medication while 22.6% failed to do so ([Table 2](#)).

In this study those respondents who developed rash related to drug use were 48.8% while 36.9% of respondents had history of peripheral neuropathy. Anemia was also common adverse effects with prevalence of 20.24% in respondents who were on follow-up.

This study indicated that 39.3% of the respondents had got management for the developed adverse effects in Goba Hospital ART clinic. The types of management given vary according to specific adverse effects. The management given for Rash were Cholorphenaramine gel (65%), Hydrocortisol gel (20%), Miconazole gel (10%) and Ketoconazole gel (5%). For those patients who developed Peripheral Neuropathy Pyridoxine (36.8%), was the preferred drug, followed by Neurobion[®] (31.6%). Anemia was also common adverse effect whose management strategies fall entirely on drugs containing iron such as Ferrous-gluconate ([Table 3](#)).

The study conducted in Goba Hospital ART clinic indicated that 60.7% of respondents who developed common adverse effects had no history of management for the developed adverse effects. The main



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traditional healer (57.7%). In addition to this, being distant from (16.67%), self medication (3.85%), and no one to support (1.9%) were the reasons for common adverse effects ([Table 4](#)).

This study has shown that the rate of management of common adverse effect in Goba Hospital was 39.3% whereas the rate of non management was 60.7%. This significant amount of non-management for common adverse effects may be due to the hospital was surrounded by many villages which are far from the hospital and which doesn't have transportation service. So that patients are unable to come and manage their adverse effects.

For peripheral neuropathy the management strategies used in this study were Nerve growth factors such as Pyridoxine (36.85%) and Neurobion (31.6%). Analgesics such as Codeine phosphate (5.3%) were also used for some patients. Tricyclic antidepressant such as Amitriptyline (5.3%) and Anticonvulsants such as Carbamazepine (5.3%) also used in some patients to treat Peripheral neuropathy in Goba Hospital ART clinic. This result was almost similar with treatment strategies used to treat Peripheral neuropathy in USA where stavudine induced peripheral neuropathy were treated with agents such as Tricyclic antidepressants including Amitriptyline Desipramine or Noritriptyline and Anticonvulsants such as Carbamazepine.

In this study management strategies used for Rash include agents such as Chlorpheniramine gel (65%), Hydrocortisol gel (20%), Miconazol gel (10%) and lastly Ketoconazole (5%). This management strategy is somewhat closer to management strategies used conducted in Chicago where symptoms were relieved with Oral Antihistamines or Corticosteroids cream. Some investigators had postulated that prophylaxis with antihistamines or corticosteroids during the induction phase may reduce the incidence of rash.

Anemia was managed by Ferrous gluconate in this study, it is comparable to the study conducted in USA where granulocyte colony stimulating factors and Erythropoietin have been used to correct anemia.

In this study the rate of non-management for common adverse effects was 60.7%. There were many reasons for this significant amount of non-managements. Out of this, the use of traditional healer for management ranks first (57.7%) followed by being distant from the hospital to seek management (16.67%), lack of transport (7.7%), self medication practice (3.8%) and lack of support (1.9%). They used traditional healer due to combination of many reasons, for one thing since people's perception in modern medicine is still low. The second reason may be due to fear of stigma when seen taking drug from ART clinic or repeated visit to hospital. In addition to this, people living nearby village of the hospital are based on traditional farming system which leads to low productivity and finally low income. So they cannot cover cost of transportation to come and get management for the developed adverse effects.

Conclusion

The rate of management of adverse effect among HIV patient in Goba hospital is low. Health education on common adverse effect and their management should be given to patients.

Acknowledgments

The author would like to express due appreciation for all study participants for their consent to participate in the study. Special thanks are for research staff participated in data collection and write up. We are also grateful to Jimma University for providing us different reference materials and financial support.

References



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Guideline for implementation of antiretroviral therapy. Federal
Ministry of Health. 2007

Paul-hospital. 1st ed 2005. Drug administration and control

3. TB/HIV a clinical manual. 2nd ed. Geneva, Switzerland: 2004. World Health Organization.
4. Treisman GJ, Kaplin AI. Neurologic and psychiatric complications of antiretroviral agents. *AIDS*. 2002;16(9):1201–1215. [PubMed: 12045485]
5. Tina JK. Significant toxicities associated with antiretroviral therapy. *J Pharm Pract*. 2000;13(6):457–473.
6. Monier PL, Wilcox R. Metabolic Complications associated with HAART in HIV-infected adults Paul-hospital. *Am J Med Sci*. 2004;328(1):48–56. [PubMed: 15254441]
7. Cozzi-Lepri A, Phillips AN, Monforte A, et al. Virologic and Immunologic Response to Regimens Containing Nevirapine or Efavirenz in Combination with 2 Nucleoside Analogues in the Italian Cohort Naive Antiretrovirals (I.Co.N.A.) Study. *J Infect Dis*. 2002;185(8):1062–1069. [PubMed: 11930316]
8. Max B, Sherer R. Management of adverse effects of antiretroviral therapy and medication adherence. *Clin Infect Dis*. 2000;30(Suppl 2):S96–116. [PubMed: 10860894]
9. Hawkins C, Achenbach C, Fryda W, Ngare D, Murphy R. Antiretroviral durability and tolerability in HIV-infected adults living in urban Kenya. *J Acquir Immune Defic Syndr*. 2007;45(3):304–310. [PubMed: 17414931]
10. Franco M, Claudio A, Monica A, et al. Reasons for discontinuation of nevirapine-containing HAART: results from an unselected population of a large clinical cohort. *J Antimicrob Chemother*. 2007;59(3):569–572. [PubMed: 17255141]
11. Schiller DS. Identification, management and prevention of adverse effects associated with highly active antiretroviral therapy. *Am J Health Syst Pharm*. 2004;61:2507–2522. [PubMed: 15595225]
12. Schiller Daryl S. Identification, Management and Prevention of adverse effects associated with highly active antiretroviral therapy. *Am J Health Syst Pharm*. 2004;61:2507–2522. [PubMed: 15595225]

Figures and Tables



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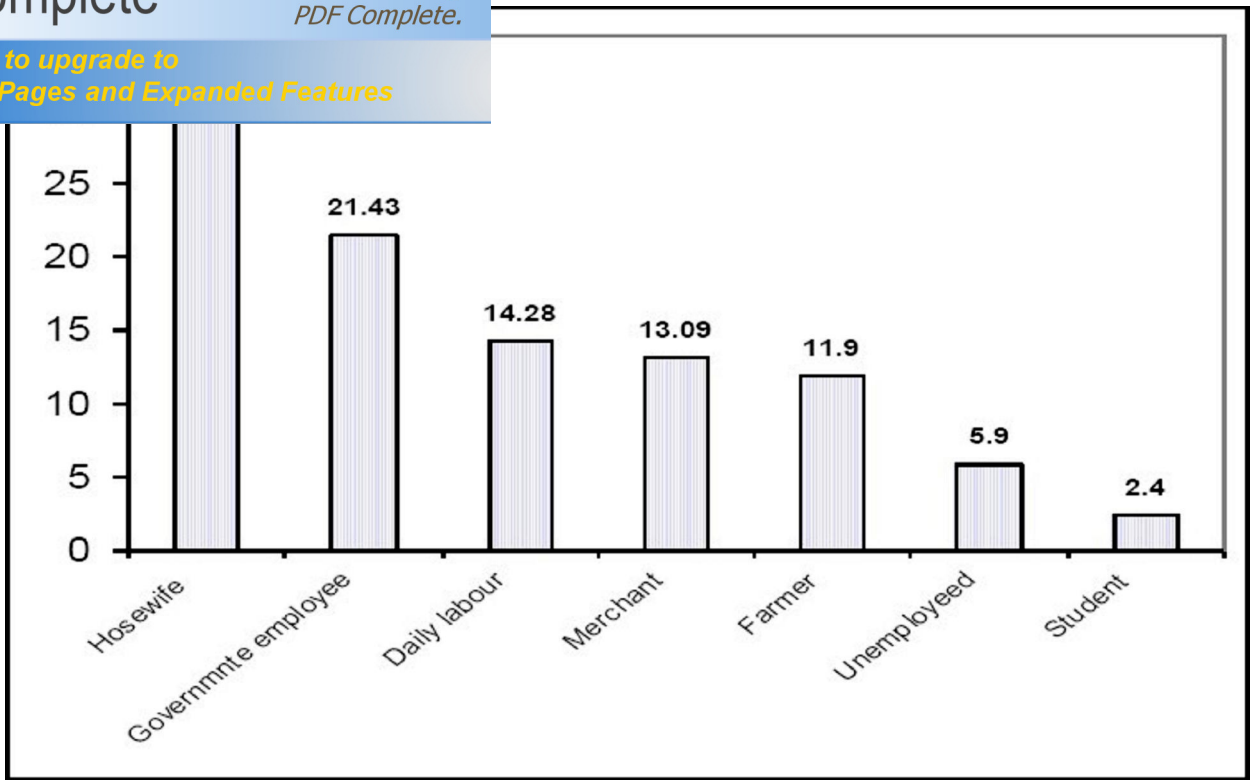
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		No.	%
	18-49	74	88
	>50	10	12
Sex	M	36	42.85
	F	48	57.15
Weight (kg)	<30	-	-
	30-59	63	75
	>60	21	25
Height (m)	<1	-	-
	1-1.6	33	39.3
	>1.6	51	60.7
BMI	<17	13	15.48
	17-18	16	19.04
	>18	55	65.48
Patient source	Out patient	64	76.20
	In patient	13	15.47
	PMTCT	4	4.76
	Emergency	3	3.57

BMI: Body mass index

Socio demographic characteristic distribution of HIV patients experienced peripheral neuropathy, anemia, rash due to ART in Goba Hospital ART clinic in 2010

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Occupational status of respondents in Goba hospital ART clinic, Bale in 2010.



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	Frequency	%
	40	47.6
	19	22.6
D4T (30)/3TC/Efv	2	2.4
D4T (40)/3TC/Efv	1	1.2
ZDV/3TC/Nvp	18	21.4
ZDV/3TC/Efv	4	4.8

Initial ART regimen among HIV patients who had followed up during data collection period in Goba Hospital, ART clinic in 2010



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	Strategies	Frequency	%
	...e gel	13	65
	1	4	20
	Miconazole gel	2	10
	Ketoconazole gel	1	5
Anemia	Feso4-gluconate	4	100
Peripheral	Pyridoxine	7	36.8
neuropathy	Neurobion	6	31.6
	Amytriptiline	4	21.0
	Carbamazepine	1	5.3
	Codeine phosphate	1	5.3

Management strategies used for common adverse effects (Rash, peripheral neuropathy Anemia) in patients who had follow up in Goba Hospital, ART clinic in 2010



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	nt	%
	ment	57.7
	ospital so	16.67
	that never come for management	
	Lack of transport	7.7
	Self medication	3.8
	No one to support	1.9

Reasons for non management of common adverse effects among patients who had follow up during data collection, in Goba Hospital ART clinic in 2010

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