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Proportion of Late Presentation to HIV/AIDS Care in Yekatit 12 Hospital Medical College, Addis Ababa. 2020GC

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Abstract **Back Ground:** Acquired immune deficiency syndrome (AIDS) is one of the public health important diseases around the globe. It continues to be a major global public health issue. Late presentation for HIV care is associated with increased morbidity and mortality, increased rate of ART drug resistance and occurrence of complications, increased healthcare expenses and possibly increased HIV transmission rates. Therefore, the success of large-scale antiretroviral therapy programs depends on early initiation of HIV/AIDs are. The purpose of the study is to assess the prevalence of late presentation to HIV/AIDS care and will be a base for further studies. **Objectives:** The objective of this study is to assess the proportion of late presentation to HIV/AIDS care among patient attending at ART clinic of Yekatit 12 hospital medical college. **Methods: Study Area:** The study was conducted at Yekatit 12 hospital medical college ART clinic, Addis Ababa Ethiopia. **Study design and sampling technique:** A retrospective cross sectional study design was employed. All newly enrolled HIV positive patients in the study period were involved in the study. **Method of data collection and analysis:** Retrospective data was collected from database and patient's card, from September, 2018 to September, 2020.using checklists which is adapted from different literatures, ART log books and previous similar study and was organized according to study objectives. Descriptive analysis was done using SPSS software and data were presented with tables and charts. **Result:** From a total of 229 study groups majority were females 64% with dominant age group of 25-44 yrs. 44% were married and 33.6% were attended elementary school. The overall late presenters to HIV/AIDS care was 49.7% with CD4 cell count < 200cells/mm3 40.6% and WHO clinical stage 3 and 4 30.1%. The average CD4 cell count was 275 cells/mm3. The median time to present for HIV care after initial HIV diagnosis was 4 months. The most common opportunistic infection was TB infection (pulmonary and extrapulmonary TB). **Conclusion:** Nearly half of the patients were late presenters categorized by either by CD4 count or WHO clinical staging. One third of them were presented with sign symptoms of advanced HIV infection.

Keywords: *late presentation, HIV/AIDS care*

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1. Introduction

1.1. Background

Acquired immunodeficiency syndrome (AIDS) is one of the public health important diseases around the globe. It continues to be a major global public health issue, having claimed more than 39 million lives so far. There were approximately 35.0 million people living with HIV at the end of 2013 with 2.1 million people becoming newly infected with HIV in 2013 globally. Sub-Saharan Africa is the most affected region, with 24.7 million people living with HIV in 2013. Also, sub-Saharan Africa accounts for almost 70% of the global total of new HIV infections [1].

Human immunodeficiency virus (HIV) causes HIV infection and AIDS. The virus attacks the immune system. As the immune system weakens, the body is at risk of getting life-threatening infections and cancers. Once a person has the virus, it stays inside the body for life [2].

The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS), which can take from 2 to 15 years to develop depending on the individual. AIDS is defined by the development of certain cancers, infections, or other severe clinical manifestations. Late HIV diagnosis is a critical public health challenge in many countries. Late diagnosis is associated with nearly 10-fold higher mortality in the year following diagnosis, higher morbidity and healthcare costs, and increased duration of possible HIV transmission before being diagnosed and treatment [2].

Early diagnosis is critical in the prevention and control of the spread of HIV at both an individual and population level. Despite the introduction of highly active antiretroviral therapy (HAART) and its proven benefits, a substantial number of HIV-infected persons are unaware of their serostatus and are at risk of presenting for care when HIV disease is advanced. Patients presenting late to care pose challenges in clinical care and experience a higher burden of HIV-related complications compared with those who are tested and treated earlier. Late presenters have higher rates of hospitalization, opportunistic infections (OIs) and early mortality (1, 2). Late presentation to care is also associated with increased medical care cost, and treatment is usually more complex compared with early presenters [4].

In Ethiopia, Free ARV service was launched in January 2005 and public hospitals start providing free ARVs in March 2005. ART service is available in 913 Health facilities of which 765 are Health centers. On the basis of the 2010-2014 strategic plan ART coverage for adults (age 15+) has reached 76% but the coverage remains low (23.5%) for children (age <15) living with HIV. [3].

1.2. Statement of the Problem

By the end of 2011, there was an estimated 34.2 million people living with HIV/AIDS (PLWHA) globally. In sub-Saharan Africa there were 23.5 million PLWHA, 3.1 million of whom were children aged below 15 years, representing almost 80% of the global burden of HIV/AIDS in children. Of the 2.5 million new infections worldwide, 1.7 million (68%) occurred in sub-Saharan Africa in 2011, with an overall prevalence of 4.8 % [4].

In sub-Saharan Africa and some parts of Asia and South America, the prevalence of late presentation has been documented to range between 40 and 55%; most of these studies relied mainly on clinical staging [15,16,17,18]. In a multi-country study assessing mortality and morbidity among HIV-infected patients from sub-Saharan Africa and Asia, mortality rates were highest for subjects with CD4 counts < 50 cells/μL, followed by those with counts between 51 and 100 cells/μL. AIDS rates were between 11.5 and 50 per 100 persons for those with CD4 counts < 100 cells/μL [5].

According to single point HIV related estimates and projections for Ethiopia 2012 the national HIV prevalence is 1.2% and the recent 2011 EDHS, the urban prevalence is 4.2% which is seven times higher than that of the rural (0.6%). The 2011 EDHS also shows that the HIV prevalence varies from region to region ranging from 0.9% in SNNPR to 6.5% in Gambela. Furthermore, the HIV related estimates and projections indicate that the 2013 HIV prevalence in regions ranges from 0.8% to 5.8%. Based on the 2012 estimate the 2014 ART need is 64,464 for children and 378 657 for adults [3].

A CD4 cell counts below 200/mm3 represents the threshold where the risk for clinical symptoms and AIDS-defining illnesses starts to increase substantially. HIV-1 infection without antiretroviral therapy (ART) in the vast majority of infected individuals progressively destroys the immune system leading to opportunistic diseases and death. Current management of HIV infection therefore aims to prevent opportunistic diseases by starting ART before CD4 cell counts decline below this critical level [6].

There was no consensus on what should be considered delayed HIV diagnosis. The consensus definition was reached in October 2009 and presented at the HIV in Europe 2009 Conference in the Nobel Forum in Stockholm and at the EACS Conference in Cologne in November 2009.Late presentation: Persons presenting for care with a CD4 count below 350 cells/mL or presenting with an AIDS-defining event, regardless of the CD4 cell count. Presentation with advanced HIV disease: Persons presenting for care with a CD4 count below 200 cells/mL or presenting with an AIDS-defining event, regardless of the CD4 cell count. As such, patients with a CD4 count 200cells/mL will meet both criteria and will be both ‘late presenters’ and ‘presenters with advanced HIV disease’. Furthermore, any person with an AIDS-defining condition will also meet both criteria, regardless of his/her CD4 cell count (11). In Ethiopia, late presentation for HIV/AIDS care is considered when HIV infected individuals come for ART care with CD4 below 200 cells/ml [7].

Patients diagnosed at a late stage have poorer prognosis, whereas when started early, ART is more effective and with early diagnosis psychosocial aspects can be better dealt with. Early diagnosis of HIV-infection has benefits for the patient, public health and the society as a whole. It also reduces HIV-trans-mission through clinical and behavioral preventive measures [8].

Therefore, early identification of infected individuals has been a priority of most AIDS prevention and control programs since the beginning of AIDS epidemic. However, late initiation of medical care after acquisition of HIV infection remains common. This delay may occur because HIV-infected persons are not aware of their risk of

infection and fail to seek testing, or, even if aware of their risk, do not seek testing or face significant barriers to access HIV testing. In addition, patients may not immediately seek or be provided with access to medical care upon receiving their first HIV-positive test result [9].

Identification of patient characteristics associated with late presentation to care is important to target interventions aimed at favoring early entrance into HIV care. Knowing the magnitude of the problem and identification of these risk factors for late diagnosis of HIV infection allows us to make practical recommendations for screening strategy. Therefore, this study will help to know the prevalence of late presenters to HIV care and treatment, in HIV infected patients who visited ART clinic at Yekatit 12 Hospital medical college.

1.3. Significance of the Study

It has been more than 30 years since the first reported HIV/ AIDS cases, 15 years since Highly Active Anti-Retroviral Treatment became a reality. Timely access to antiretroviral therapy is a key to controlling HIV infection. Late diagnosis and presentation to care diminish the benefits of antiretroviral and increase risk of transmission. With very late HIV disease and opportunistic infections initiating therapy in these patients is associated with increased risk of mortality. Also, Immune Reconstitution Inflammatory Syndrome (IRIS) which is associated with low CD4 T cell counts at baseline occurs at a higher frequency in subjects with late HIV diagnosis. Late diagnosing and opportunistic infections could be one of the challenges for PLWHA. Therefore, the present study, aimed at assessing the prevalence of factors associated with late presentation to HIV care.

There are several studies conducted on different issues related to HIV and PLWHA. However, information about prevalence of late presenters and associated factors for PLWHA is lacking, more of in our setup. So, this study was conducted to determine the prevalence of the reported late presenters.

Since related researches are lacking in Ethiopia, the result of the study may be used as a baseline for further related studies. Additionally, Yekatit 12 medical college hospital and other governmental and non-governmental organizations working on health-related issues may utilize the result of this study.

Late presentation for HIV care is an issue that needs specific attention in order to understand diagnostic, constrains, promote public awareness to HIV screening and improve health care referral.

2. Literature Review

Late HIV diagnosis is a critical public health challenge in EU/EEA countries. Late diagnosis is associated with nearly 10-fold higher mortality in the year following diagnosis, higher morbidity and healthcare costs and increased duration of possible HIV transmission before being diagnosed and treated [14,15,16]. While HIV surveillance data indicate that that the proportion of people diagnosed late has decreased slightly over the last decade [10].

Across Europe, almost one-third of individuals infected with HIV do not enter health care until late in the course of their infection. Despite attempts to encourage earlier testing for HIV, this situation has remained stationary for several years without evidence of improvement [11].

Trends in late diagnosis Among 12 EU countries (Austria, Bulgaria, Czech Republic, Cyprus, Denmark, Spain, Luxembourg, Netherlands, Romania, Slovakia, Slovenia, and the United Kingdom) reporting data on CD4 + T-cell count at diagnosis for more than 50% of their cases for the period 2004 to 2013, the proportion of cases diagnosed late declined, from 55% of new diagnoses with CD4 + data available in 2004 to 44% in 2013. During the same period, the median CD4 + T-cell count at diagnosis increased from 312 to 390 cells/mm [2].

In 2012, information on CD4 cell counts at the time of diagnosis was available in 20 countries for 16 150 cases (55% of all cases reported in 2012). Half of these cases (49%) were reported as late presenters (CD4 cell count <350/mm 3), including the 30% of cases with advanced HIV infection (CD4 <200/mm 3). The proportion of late presenters was highest among heterosexually acquired cases reported as originating from sub-Saharan African countries (62%) and among PWID (56%). The lowest proportions of late presenters were observed in MSM (38%) and in cases of mother-to-child transmission (23%) [2].

Study in Italy revealed that among the study patients, 255 (26.3%) were delayed presenters, and 280 (28.9%) were late testers. In the same study injection drug use significantly increased the probability of delayed presentation but reduced the chance of late testing. A previous HIV-negative test was associated with a reduced risk of both delayed presentation and late testing. Unemployment was positively associated with delayed presentation and increasing age with late testing, whereas HIV counseling at the time of first positive HIV test strongly reduced the odds of delayed presentation. Conversely, use of injected drugs was associated with a decreased probability of testing late, as were female gender older patients and those reporting same gender sex had lower proportion of delayed presenters [12].

Also, other study Swiss showed that, risk factors for low CD4 count were age and non-White race. Homosexual transmission, intravenous drug use and living alone were protective. In group B, 30% initiated ART with CD4 200 cells/ mL; 18% and 2% dropped to CD4 200 and 50 cells/mL without ART, respectively. Sub-Saharan origin was associated with lower probability of CD4 o 200 cells/ mL without ART during follow-up. Median CD4 count at ART initiation was 207 and 253 cells/mL in groups A and B, respectively. ART was initiated in 1413 (74%) patients [13].

Median CD4 cell count at ART initiation was 207 cells/mL, also the Time from HIV diagnosis to ART initiation, stratified by initial CD4 cell count. Median time to ART initiation was 30 days and 37 days in patients with initial CD4 count 50 cells/mL and CD4 count of 50–199 cells/mL, respectively; 98% and 94%, respectively, were treated within 6 months. The value of the first CD4 cell count below 200 cells/ mL independently predicted the time to ART initiation, CD4 200 cells/ mL and, particularly, CD4 50 cells/mL before starting ART are predominantly caused by late presentation [13].

The findings of study in Spain Barcelona conducted on the 2,938 newly diagnosed HIV-infected individuals,

2,507 (85.3%) had either a CD4 cell count or an AIDS diagnosis available. A total of 1,139 (55.6%) of the 2,507 studied cases over these nine years were late presenters varying from 48% among men who have sex with men to 70% among heterosexual men. The proportion of late presentation was 62.7% in 2001-2003, 51.9% in 2004-2005, 52.6% in 2006-2007 and 52.1% in 2008-2009. A decrease over time only was observed between 2001-2003 and 2004-2005 (p=0.001) but remained constant thereafter (p=0.9). Independent risk factors for late presentation were older age at diagnosis (p<0.0001), use of injected drugs by men (p<0.0001), being a heterosexual man (p<0.0001), and being born in South America (p<0.0001) or sub-Saharan Africa (p= 0.002). [14]

Study conducted in Brussels and Northern France revealed that, of the 570 patients initiating care with advanced HIV disease, 475 (83.3%) were tested late and 95 (16.7%) had delayed presentation to care. Risk factors for delayed presentation to care were: age 30-50 years, injection drug use, and follow-up in Brussels. Risk factors for late testing were: sub-Saharan African origin, male gender, and older age. HIV transmission through heterosexual contact was associated with an increased risk of both delayed presentations to care and late testing. Patients who initiated HIV care in 2003-2007 were less likely to have been tested late or to have a delayed presentation to care than patients who initiated care before 2003 [15].

The study conducted in India 3680 subjects were tested for CD4 T cell counts at the laboratory for HAART initiation evaluation from 2001-2007.majoritiy of the subjects were males (2,598, 70.6%) aged between 25-44 years (2,661, 72.36%) reporting heterosexual promiscuity as the mode of HIV acquisition (1,475, 40.1%). Majority of subjects presented with one or more AIDS related and/or AIDS defining illnesses. At the time of first CD4 T cell count (3,068, 83.4%). Among these, 529 (14.4% of total) subjects had pulmonary or extrapulmonary TB, 102 (2.8%) had sexually transmitted infections at the time of testing, and 564 subjects (15.3%) had at least one AIDS defining illness [16].

According to this study the median CD4 T cell count of 242 cells/uL. Males had a lower median CD4 T cell count (207cells/uL) as compared to females (243 cells/uL). Of the total study population, 2,113 (57.4%) had CD4 T cell counts more than 200 cells/uL, 1,214 (33%) had CD4 T cell count below 200 cells/uL, and 353 (9.6%) had less than 50 CD4 T cells/uL. In this study that nearly 80% of subjects were classified as late presenter [16].

By the end of 2011, access to antiretroviral therapy in the sub-Saharan Region had increased fifty-fold from 100 000 in 2003 to 6.2 million, i.e., 56% of the total of 10.4 million people estimated to be in need [4].

Botswana, Comoros, Namibia and Rwanda have achieved universal access to antiretroviral therapy and 12 countries have coverage rates exceeding 50%, 24 showing that rapid scale up using a public health approach is feasible. The percentage of pregnant women living with HIV who received medicines for preventing mother-to-child transmission (PMTCT) increased from 15% in 2005 to 60% in 2010. Seven countries exceeded the 80% coverage in achieving the universal access target of coverage with effective regimens of antiretroviral medicines [4].

Study conducted in Nigeria reviled that among 14,487 eligible patients, 12 401 (85.6%) were late presenters and 9127 (63.0%) presented with advanced AIDS disease. From these subjects, almost two-thirds were diagnosed with AHD, and an overwhelming majority was late presenters, with CD4 counts below the threshold at which initiating ART is recommended [5].

In this study at enrolment, the median CD4 count was 151 cells/μL. The proportion of patients presenting late decreased from 88.9% in 2005 to 80.1% in 2010 (P < 0.001). Male patients had higher rates of late presentation (90.1% vs. 83.3% for women; P < 0.001) as well as AHD (70.4% vs. 59.2%, respectively; P < 0.001) when compared with female patients, and this trend was also observed throughout the study period [5].

Only few studies were done in our country, The study conducted in shashemene hospital showed Out of the 714 newly infected HIV individuals during September 1, 2010 to August 31, 2012, females were above half of whom 25.4% reported pregnancy. The mean age was 33 years. Majority of the study population include illiterate (60.1%) by education and single by marital status. Almost all (90.8%) subjects were residing in the town of the study area. The mean CD4 cell count at base line assessment was 251 cells/ mm3 [17].

In the above study the prevalence of late presentation was 34.5% (246/714) of the individuals. According this study, the late presentation for HIV care was differed by age, sex, marital status, and pregnancy status. Among the total late presenters, females took the larger (68.7%) account while those between 31-45 years contribute 67.1% by age. Regarding marital status, single were the dominant study participant late presenters (59.8%) compared to married and widowed. Majority (71%) of non-pregnant women were late presenters. This study also showed that participants who did not get addicted where 50% less likely to present late for HIV/AIDS care than those who got addicted [17].

3. Objectives

3.1. General Objective

- To assess the proportion of late presentation to HIV/AIDS care in Yekatit 12 hospital medical college.

3.2. Specific Objectives

- To determine the proportion of late presentation to HIV/AIDS care, among newly enrolled HIV infected patients at ART clinic of Yekatit 12 hospital medical college.

4. Methods

4.1. Study Period and Area

The study was conducted in Yekatit 12 hospital medical college ART clinic. Yekatit 12 hospital medical college is one of the hospitals found in Addis Ababa, a capital city of Ethiopia. According to 2007 census the city has a total

population of 2.7 million of which 1.3 million were male and 1.4million female. Data were retrieved from ART database and records of HIV positive people aged 15 years and above while visiting ART clinic for the first time during the period of September, 2018 to August, 2020.

There are different services available related to HIV diagnosis and care in Yekatit 12 hospitals medical college. Voluntary counseling and testing (VCT), prevention of mother to child transmission (PMTCT). Treatment of sexually transmitted disease, ART and treatment of opportunistic infection services are available.

4.2. Study Design

A retrospective cross sectional study design was employed.

4.3. Population

4.3.1. Source Population

All of the patients attended for ART care at Yekatit 12 hospital, during the study period from September, 2018 to September, 2020.

4.3.2. Study Population

All newly enrolled RVI patients who had initiated HIV/AIDS care in the ART clinic of Yekatit 12 hospitals medical college during the study period identified by reviewing the initial clinic visit medical records.

4.3.3. Inclusion and Exclusion Criteria

Inclusion Criteria

Those who were age above 15 years old and newly enrolled and had complete registration record were included.

Exclusion criteria

- Those who had incomplete recording were not included in the study. From a total of 337 newly enrolled patients in the study period 8 of patients' record were incomplete and excluded from the study.

4.4. Sample Size Determination and Sampling Technique

4.4.1. Sample Size

All newly registered patients for HIVAIDS care in ART clinic of Yekatit 12 hospital medical college during the study period were included in the study.

4.4.2. Sampling Technique

The hospital was selected with non-probable convenience method. All records that fulfill the inclusion criteria were selected in the study.

4.5. Study Variables

Independent Variables

- Age
- Sex
- Marital status
- Religion
- Educational status
- Date of HIV diagnosis confirmed

Dependent variables

- Time to present to HIV care

4.6. Data Collection Instruments and Procedure

The data was collected using record check lists. The contents of the checklists included Socio- demographic characteristics, time to present to HIV care, base line CD4 cell count, WHO clinical stages and opportunistic infections at presentation. Prior to data collection three IT professional data collectors who works in ART clinic was recruited. All of them were properly trained on how to encode and fill check lists from patient registration form and ART data base. The first few data were collected together with the investigator so as to assure that data collectors were working accordingly.

4.7. Data Quality Control

In addition to the training given, data collectors were supervised closely during the collection period.

4.8. Data processing and Analysis

The collected data was checked at the end of each data collection day for its completeness. The retrieved data was entered into computer software using SPSS version- 16 for descriptive analysis. Finally, the result was presented using frequency tables and charts.

4.9. Ethical Consideration

Before the actual data collection process, an official ethical clearance latter was obtained from Yekatit 12 hospital medical collage Research Review Technical Committee and brought to the head of ART clinic, to get permission for the study. Confidentiality will be ensured by the principal investigators and data collectors.

4.10. Limitation of Study

Limitations of my study includes the retrospective data recorded in the patient card were incomplete and excluded from the study. It was not possible to reassure validity and reliability of laboratory tests, since Testing or CD4 counting was conducted before the study.

4.11. Dissemination of Results

After the completion of the study, the finding report will be submitted to Yekatit 12 hospital medical college, SPH department. The copy will also be sent to Yekatit 12 medical college ART clinic and Addis Ababa health bureau.

4.12. Operational Definition

Late presentation to HIV care: WHO clinical stage 3 or 4 irrespective of CD4 lymphocyte count at the time of

first presentation to HIV care or first base line CD4 cell count below 200 cells/mm3 irrespective of clinical staging at the time of first presentation to the HIV care.

Early presentation to HIV care: WHO clinical stage 1 or 2 and CD4 lymphocyte count >200/mm3.

5. Result

I. Socio-demographic data

Table 1. Summary of the socio demographic data of newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

Variables	Category	Frequency	
		Number	%
Sex	Male	82	35.8
	Female	147	64.2
Age	15-24	13	5.6
	25-44	160	69.9
	>=45	56	24.5
Marital status	Single	82	35.8
	Married	101	44.1
	Divorced	21	9.2
	Widowed	25	10.9
Educational status	Un educated	74	32.3
	1-8	77	33.6
	9-12	51	22.3
	>12	27	11.8

Table 2. Distribution of Religion among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

Religion	Frequency	Percent
Orthodox	174	76
Muslim	26	11.4
Protestant	20	8.7
Others	9	3.9
Total	**229**	**100**

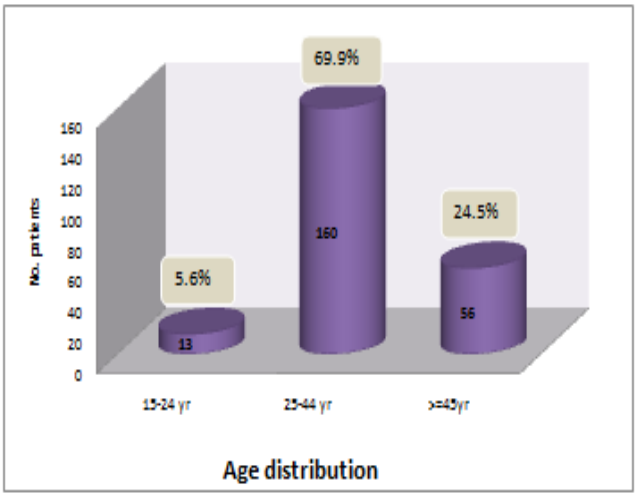

Figure 1. Age distribution among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

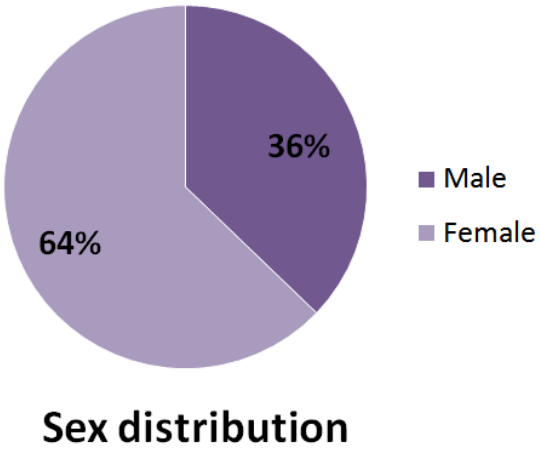

Figure 2. Distribution of sex among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC. Regarding marital status this study revealed that from a total of 229 newly enrolled RVI patients in the study period 101(44.1%) were married woman and singles were 82(35.8%) others divorced and widowed were 21(9.2%) and 25(10.9%) respectively

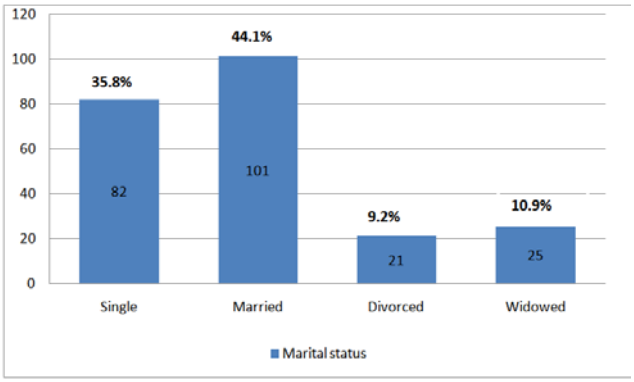

Figure 3. Distribution of marital status among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

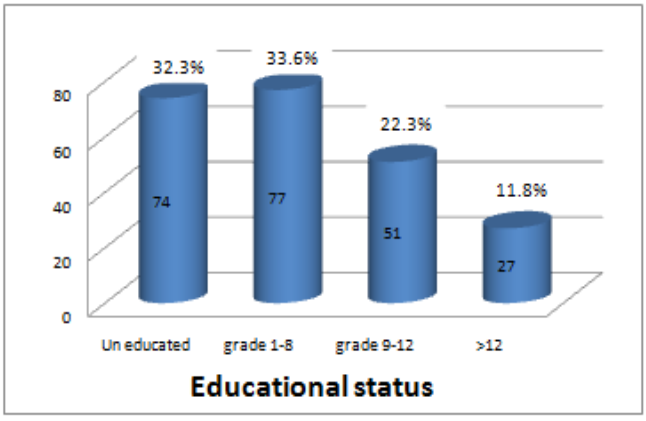

Figure 4. Distribution of educational status among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020

From a total of 229 newly enrolled RVI patients 160(69.9%) are between 24-44 years old. Those who are between 15-24 years old is 13(5.6%) and whose age greater than 45 years old is 56(24.5%).

As the study showed that from a total of 229 patients presented for ART care at Yekatit 12 hospital medical college majority of them were females 147 (64%) and males 82 (36%).

In this study majority of the study group have Orthodox religion which is 174(76%). Followed by Muslim 26(11.4%) and Protestant 20(8.7%).

As the diagram showed that 77(33.6%) of the study group is attended primary school (grade 1-8), and 74(32.3%) of patients were not ever attended school. Those who attended highs school and higher education were 22(51%) and 27(11.8%) respectively.

Table 3. Distribution base line CD4 count at presentation among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September, 2018 to August, 2020 GC

Category	Frequency	Percent	Cumulative percent
<200 CD4 cells/mm3	93	40.6	40.6
201-350 CD4 cells/mm3	63	27.5	68.1
351-500 CD4 cells/mm3	51	22.3	90.4
>500 CD4 cells/mm3	22	9.6	100.0
Total	**229**	**100.0**	

The collected data revealed that from a total of 229 patients' late presenters with CD4 cell count <200 were 94(40.6%). Patient presented with CD4 cell count 201-350 CD4 cells/mm3, 351-500 CD4 cells/mm3 and greater than 500 cells/mm3 were 63(27.5%), 51(22.3%), 22(9.6%) respectively.

Every RVI patients, newly enrolled for ART care at Yekatit 12 hospital medical college ART clinic were categorized based on WHO clinical staging of HIV infection. From a total of 229 patients' majority of patients were presented with clinical stage I 127(55.5%) but significant number of patients were presented lately with clinical stage III and IV 31(13.5%) and 38(16.6%) respectively. Those who presented with clinical stage II were 33(14.4%).

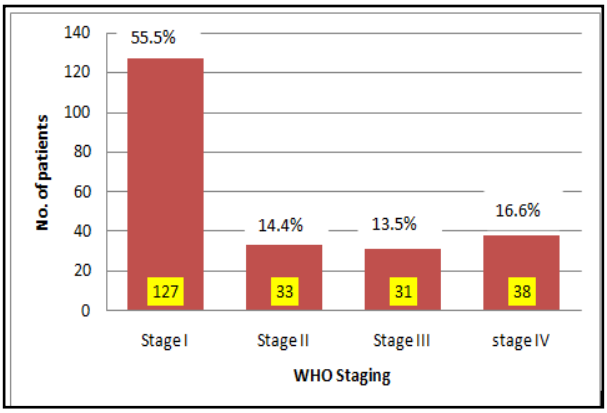

Figure 5. Distribution of WHO clinical stages at presentation among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

The result indicates from a total of 229 patients in the study groups 121(52.8%) were presented within 6 months at ART clinic after they are diagnosed with HIV infection for the first time. Those who presented within 6-12 months, 1-2 years, and 3-5 years were 10(4.4%), 15(6.6%), and 38(16.6%) respectively. 45(19.7%) patients were presented after 5 years of their first HIV diagnosed.

In this study out of 229 newly enrolled RVI patients 69 of them had at least one opportunistic infection categorized in WHO clinical stage 3 or 4. Majority of them had Tuberculosis infection (pulmonary extrapulmonary or disseminated) which accounts 14(20.2%). CNS toxoplasmosis, cryptococcal infection and esophageal candidiasis account 9(13%), 5(7.2%), 14(20.2%) respectively. Other opportunistic infection like PCP, sever bacterial infection and weight loss>10% account 5(7.2%), 14(20.2%), 4(5.7%) respectively. Other forms of opportunistic infections, other than mentioned in the above occurred in 10 patients which is 14.9%.

Table 4. Distribution time since HIV diagnosis and ART started among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

Duration b/n HIV confirmed and ART started.	No. of patients	Percent	Cumulative Percent
< 6 months	121	52.8	52.8
6-12 months	10	4.4	57.2
1-2 yrs	15	6.6	63.8
3-5yrs	38	16.6	80.3
>5 years	45	19.7	100
Total	**229**	**100**	

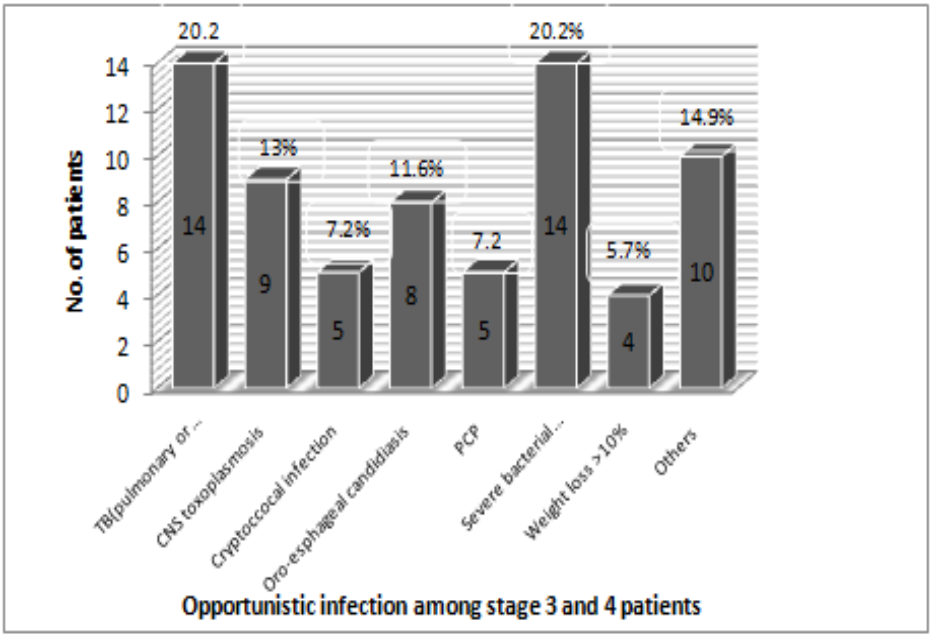

Figure 6. Distribution of opportunistic infection among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018to August 2020GC

Table 5. Summary of socio-demographic data in relation of base line CD4 count among newly enrolled RVI patients who attended ART care at Yekatit 12 hospital medical college ART clinic, from September 2018 to August 2020 GC

Variable	Category	CD 4 cell count		Total
		Below 200 cells/mm3	Above 200 cells/mm3	
Age	15-24 yrs	6	7	13
	25-44 yrs	67	93	160
	>=45	20	36	56
Sex	Male	40	42	82
	Female	53	94	147
Marital status	Single	38	44	82
	Married	42	59	101
	Divorced	5	16	21
	Widowed	8	17	25
Religion	Orthodox	74	100	174
	Muslim	10	16	26
	Protestant	6	14	20
	Others	3	6	9
Educational status	Un educated	35	39	74
	Grade 1-8	31	46	77
	Grade 9-12	15	36	51
	>12	12	15	27

6. Discussion

The reasons for late presentation is vary from place to place and depend on socio-cultural and economic factors. Like poor health seeking behavior, fear of stigma, poor universal screening, unaware of their HIV positive status and faith in herbal/spiritual treatment [5].

I studied the demographic variables, clinical and laboratory profiles of 229 HIV –infected patients who came for the first time to HIV care at Yekatit 12 hospital medical college ART clinic from September, 2018 to August 2020. In this study it was tried to assess the trend and prevalence of late presentation to HIV care and some associated factors. In this study majority of the patients were females 64% and orthodox by religion 76%. Age group between 24-44 yrs. took the large proportion of the study subjects which is 69.9%. 33.6% were attended primary school whereas 32.3% have never been at school.

Different previous studies used different criteria to define late presentation. In our study we used the European consensus criteria for late presentation. HIV infected patient presented with CD4 cell count <200 cells/µl regardless of CD4 cell count and patients presented with WHO clinical stage 3 and 4 regardless of CD4 cell count was considered as late presenters.

At the time of first CD4 T cell count, 40.6% of subjects had a CD4 T cell count below 200 cells/uL with 9.5% subjects having CD4 T cell count below 50 cells/uL. This huge number of immunocompromised patients at first visit comprises subjects in need of immediate HAART initiation. Further when segregated on symptoms, 120 patients with CD4 T cell counts less that 200 cells/uL were found to be asymptomatic. Average baseline CD4 cell count was 275 cells/µl ranging from 2 cells/µl -972 cells/µl.

From a total of 229, 38 HIV infected patients were presented with AIDS defining illness the other 31 patients were presented with WHO clinical stage 3 illnesses. In our study late presenters according to clinical staging was 30.1% and overall number of late presenters with both criteria was 49.7%.

Regarding the prevalence of late presentation for HIV/AIDS care, it was 49.7%. This is lower than studies done in India and Nigeria with magnitude of 83.4% (Mojumdar *et al*. 2010) and 85 % (PA Agaba *et al. 2014*) respectively. Whereas as we compared to other studies this is higher like the study done in Portugal, European association, Ethiopia shashemene with magnitude of 39% (A. Claudia et al 2014),44% (HIV/AIDS surveillance in Europe 2012), 34.4 %(H.Abraha,2014) respectively.

At the time of first visit at ART clinic 30.1% were symptomatic with stage 3 and 4 condition such as pulmonary and extrapulmonary TB, CNS toxoplasmosis,

cryptococcal infection, sever bacterial infections, esophageal candidiasis and others. Which is lower than the study done in India and Portugal, 83.4 % (Mojumdar *et al*. 2010) and 39% (A. claudia et al 2014) respectively. On the other hand we found higher number of symptomatic patients presented at ART clinic for the first time, comparing with the study done in Nigeria accounting 22.8%.

This study revealed that the average base line CD4 cell count at first presentation was 275 cells/ul. Previous studies showed different average base line CD4 count. For instant the studies done in Portugal has higher average CD4 count 377 cells/ul compared to this study. On the other hand, the Studies done in Lesotho, Nigeria and India have lower average CD4 count than our study, with the magnitude of 99 cells/ul,151 cells/ul and 242 cells/ul respectively.

When we look at the time to present HIV care after the first HIV diagnosis, in this study the median time that takes to present HIV care after the initial HIV diagnosis was 4 months. In present study, 52.8% were started ART care within 6 months after initial HIV diagnosis but there were significant number of patients presented after 5 years of their first HIV diagnosis which accounts 20%.

7. Conclusion and Recomendation

7.1. Conclusion

In conclusion it is found that among patients entering care, nearly halve of them were late presenters, either with low CD4 counts below the threshold at which initiating ART is recommended or with WHO clinical stage 3 and 4 conditions.

The study also shows one third of patients were presented with sign symptoms of advanced HIV infection which impose them for higher rate of morbidity and mortality rate, treatment failure, hospital admission and HIV associated complication. Even though around halve of the patients presented HIV care within 6 months after their initial HIV diagnosis, yet much number of patents were presented 5 years later, after they are diagnosed with HIV.

7.2. Recomentdation

Based on this study, I recommend that

- Sustainable universal routine HIV screening should be implemented widely in every levels of health care system to increase early identification of HIV infection.
- Referal systems to ART care need to be strengthen to minimize the time gap between the first HIV diagnosis and the time to start ART care.
- I also recommend other similar studies to be done specially in the area of the untouched pediatric age group.
- Concerned bodies like MOH, Addis ababa health bureau HAPCO and other partners that are working in areas of HIV AIDS should come up with strategies which increase community awareness about advantages of early initiation of HIV AIDS care so as to increase early presentation.
- I also suggest other similar studies to be done specially in the area of the untouched pediatric age group.
- At last I recommend Yekatit 12 hospital medical college to work more on quality of patient record keeping.

Acronyms

AIDS: Acquired Immunodeficiency Syndrome: **AHD:** Advanced HIV Disease **ART:** Antiretroviral Therapy: **CD4:** Surface Antigen on Helper T-cell. **HAART:** Highly Active Antiretroviral Therapy: **HIV:** Human Immunodeficiency Virus **IRIS:** Immune Reconstitution Inflammatory Syndrome: **PLWHA:** People Living With HIV/AIDS **PMTCT:** Prevention Mother to Child Transmission: **RVI:** Retro-Viral Infection: **UNAIDS:** United Nations on HIV/AIDS: **VCT:** Voluntary Counseling and Testing: **WHO:** World Health Organization: **MOH:** Ministry of Health: **(HAPCO)** HIV/AIDS Prevention and Control Office

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