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THROMBOCYTOPENIA IN HAART NAÏVE HIV INFECTED PATIENTS ATTENDING THE COMPREHENSIVE CARE CLINIC AT KENYATTA NATIONAL HOSPITAL

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ABSTRACT

Background: Haematological abnormalities are common in HIV infected patients. Thrombocytopenia has been associated with progression of disease. The presence of thrombocytopenia is significantly associated with decreased survival and is a predictor of mortality.

Objective: To determine the prevalence of thrombocytopenia and clinical characteristics of HIV infected patients who are HAART naïve attending the Kenyatta National Hospital Comprehensive Care Clinic.

Design: Cross-sectional descriptive Study.

Setting: Kenyatta National Hospital Comprehensive Care Clinic.

Subjects: HIV positive HAART naïve patients.

Results: Three hundred and forty HIV infected HAART naïve patients with a mean age of 37.3 years and range of 18 years to 72 years were recruited. The male to female ratio was 1:1.6. The study population comprised mostly of; young patients (39.9% between 30-40 yrs), females (61.6%) in WHO clinical stage I (57.6%) and with CD4 count between 200-500 cells/mm³. The mean platelet count was 230,000 cells/ul. The prevalence of thrombocytopenia in this population was 3.8%. Most of the patients (66.7%) with thrombocytopenia had a bicytopenia with the rest having isolated thrombocytopenia or pancytopenia. Bleeding tendencies were observed more in the thrombocytopenia group (p= 0.011). Patients with CD4 count < 200 cells/mm³ were more likely to have thrombocytopenia (p < 0.050).

Conclusion: The prevalence of thrombocytopenia is low among ambulant HIV infected HAART naïve patients attending the Kenyatta National Hospital Comprehensive Care Clinic. This could be attributed to young age, predominant female gender and early disease WHO Stage 1 in the study population. Other studies found older age, male gender and advanced HIV infection population to be determinants where higher prevalence of thrombocytopenia have been reported.

INTRODUCTION

Thrombocytopenia (platelet count < 150,000) has been studied in various HIV infected patient populations and found to have a prevalence of between 9.2-24.7% (1-4). Cytopenias have been reported to be more prevalent and severe in those with advanced HIV disease (WHO clinical stage III and IV), lower CD4 count and higher viral load (1,5,6). Thrombocytopenia

has also been associated with decreased survival and is a predictor of mortality (7,8). Patient characteristics that have been associated with a higher likelihood of thrombocytopenia are: older age, black race, male gender and use of intravenous drugs (4,7,9). Bone marrow abnormalities have been documented in all stages of HIV disease with more dyscrasias in those with advanced disease (10). Highly active anti-retroviral therapy are associated with significant

improvement in HIV associated thrombocytopenia along with other additional therapies like steroids, intravenous immunoglobulin for the severe cases (5).

This study was a cross-sectional descriptive study to determine the prevalence of thrombocytopenia at the Kenyatta National Hospital Comprehensive Care Clinic and describe patient characteristics of those found to have this condition.

MATERIALS AND METHODS

The study was conducted between July 2009 and January 2010. This was a cross-sectional descriptive study carried out on HIV infected HAART-naïve patients at the Kenyatta National Hospital Comprehensive Care Clinic. Those included in the study were above 18 years and gave informed consent. Patients known to have hematological malignancies, on cytotoxic medications or pregnant were excluded from the study.

Three milliliters of blood was drawn from the antecubital fossa of patients who met the inclusion criteria and put in an Ethylene Diamine Tetra-acetate (EDTA) bottle. A total blood count was done on an automated Coulter counter (Beckam Coulter Ac. T5 diff model) and peripheral blood film prepared after which it was stained with Romanowsky stain. CD4 cell count was done on the same sample using Cyflow machine (Parctec model).

Socio-demographic and clinical data were collected and analyzed using SPSS version 16.0. Approval to carry out the study was obtained from Ethics and Research committee of the Kenyatta National Hospital.

RESULTS

Three hundred and seventy patients who were HAART naïve were screened and 340 of them met the inclusion criteria. Reasons for exclusion included prior exposure to HAART therapy through the prevention of mother to child treatment program and pregnancy. The table 1 below shows the baseline characteristics of the study population.

Table 1
Baseline characteristics of the study population, n=340

Characteristics	frequency
Mean age (years)	37.3yrs (SD 9.8)
Female sex	209(61.6%)
Married	200(58.6%)
Education (secondary)	146(43%)
Employed	245(72.1%)
Bleeding tendencies	12(3.8%)
CD4 count (200-500)	185(54.4%)

Figure 1
WHO clinical staging of the study patient population

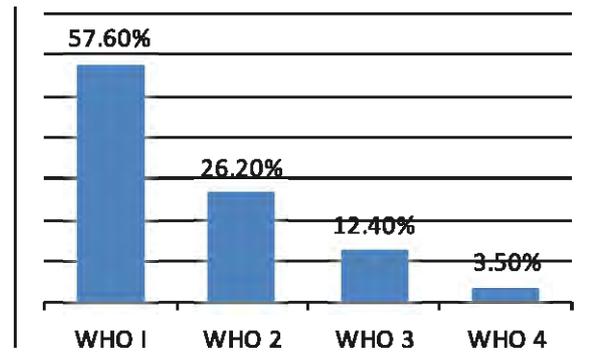
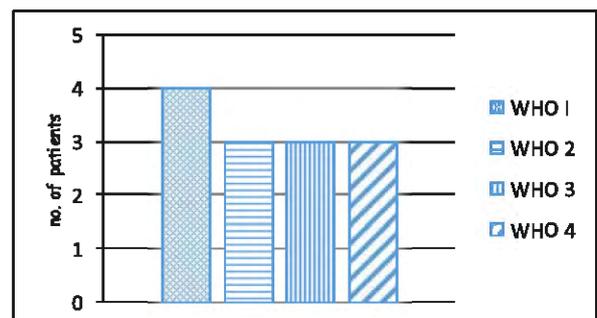


Table 2
Characteristics of the study patients with thrombocytopenia

Characteristics of patients with thrombocytopenia	proportion
Prevalence of thrombocytopenia	3.8% (n=12)
Proportion with pseudothrombocytopenia (platelet count <150,000/ul but on peripheral smear normal count)	3.2% (n=11)
Proportion of females	50%
M:F ratio (1:1)	(n=6)
Mean age (years)	40yrs (SD8.1)

None of the patients with thrombocytopenia reported intravenous drug use.

Figure 2
WHO clinical staging of the study patients with thrombocytopenia (n=12)



Isolated thrombocytopenia was seen in 16.7% of patients whereas 66.7% (n=8) had bicytopenia and the remaining 16.7% had pancytopenia. 41.7% (n=5) of patients had a CD4 count <200cell/ul and 58.3% (n=7) had a CD4 count >200cell/ul with the median CD4 count being 310cell/ul with an interquartile range of 80-369. A lower CD4 count was significantly associated with thrombocytopenia when categorized as CD4 count less than or more than 200 (p=0.05). Patients with thrombocytopenia were six times more

likely to bleed $p=0.011$ (OR 6.6 95%CI 1.3-34.4). Two patients had bleeding tendencies: A 28 year old male with hematuria, was in WHO clinical stage III with a CD4 count of 116cell/ul and platelet count of 74,000cells/ul. The second patient was a 38year old male with WHO clinical stage IV disease. He had epistaxis and a platelet count of 60,000cells/ul.

DISCUSSION

The prevalence of thrombocytopenia in this study population was low at 3.8% compared to what has been reported in other studies in Africa and the West (1,7). The low prevalence in this study population was contributed by a number of factors which included patients age and gender. The mean age of the study population was 37.3 years which reflected the results of the Kenya Demographic and Health Survey of 2007 that showed most of the HIV infected population in Kenya are between age of 15-49 years. Male gender has been strongly associated with occurrence of thrombocytopenia (1,7). whereas in this study the females were predominant accounting for 61.6% of the study population. Intravenous drug use which is associated with thrombocytopenia (4,9). was not reported in this patient population.

Majority (57.6%) of our study population were in WHO clinical stage I which is not surprising because most our patients were mainly recruited from the outpatient clinic. Other studies in HAART naïve patients that reported a higher prevalence of thrombocytopenia, had patients with more advanced HIV disease (2,3,11).

In spite of a relatively high platelet count, bleeding tendency still occurred in some of our study patients. In the general population, the risk of spontaneous bleeding is higher at platelet counts lower than twenty thousand. This finding implies that apart from the quantitative abnormalities they likely had associated platelet functional impairment (qualitative abnormalities). This observation has been made in other studies (1).

In this study thrombocytopenia occurrence was distributed through the different WHO clinical stages of HIV disease. A lower CD4 count (<200cell/ul) was significantly associated with thrombocytopenia. A larger study would be required to ascertain clinical significance of platelet count and WHO clinical staging, CD4 count and bleeding tendencies as this study found few cases. Patients who are hospitalized should also be included so as not to underestimate the burden of thrombocytopenia which has been associated with mortality (1,2).

In conclusion, the prevalence of thrombocytopenia in this study population of young HIV infected patients, predominantly female who were in WHO clinical stage 1 was low at 3.8%.

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