Abstract

Background: Untreated HIV/AIDS leads to severe immune depletion with opportunistic

infections and other co-morbidities. Highly active anti-retroviral therapy (HAART) enhances immunity by sustained HIV- viral suppression, increase in CD4+ cell count and immune restoration. HAART reduces risk of neutropaenia, anaemia and accompanied decrease in incidence of opportunistic infections.
Objectives: To study the CD4+ cell response in patients with severe HIV/AIDS disease over one year period while on HAART.
Design: Observational, descriptive, longitudinal study.
Setting: Kisumu District Hospital (Medical outpatient clinic, medical and surgical wards), Nairobi Rhematology clinic and The Mater Hospital between July 2001 and March 2007.
Subjects: Four hundred and sixty three consenting patients were screened for the study.
Intervention: The 103 patients included received HAART within one to four weeks and appropriate treatment for the opportunistic infections and other co-morbidities. Various HAART combinations including combivir/efavirenz, stavudine/lamivudine/nevirapine and triomune 30/40 (fixed dose combination of stavudine, nevirapine and lamivudine) were used. Some delayed HAART because of the co- morbidities which had to be managed first (severe anaemia, hepatitis and meningitis).
Main outcome measures: CD4+ cell increase, new clinical events.
Results: Four hundred and sixty three patients (256 males and 207 females) were screened. One hundred and three patients (55 males and 48 females) were included and 360 (201 males and 159 females) patients were excluded. Mean age was 37.9 ± 9.0 years range of (15-70). The mean CD4+ cell counts over the study period were 141.7 ± 176.5 (1-1022), 192.4 ± 198.5 (3-1275), 221.2 ± 178.0 (3-1300), 247.2 ± 197.7 (1-1401) and 268.6 ± 189.9 (1-1390) cells/µl at 0,3,6,9 and 12 months respectively. Nine patients had higher CD4+ cell counts > 350 cells/µl (433-1022) at baseline and higher HIV-viral RNA range between 51,830-1million copies/µl. The patients had multiple co-morbidities,
namely, had tuberculosis, sepsis, cryptococcus meningitis, herpes zoster virus, four had non-Hodgkinfs lymphoma, oral candidiasis, hepatitis B virus, pneumocytis jiroveci pneumonia and HIV with renal dysfunction. Seventy (68%) patients had . 2 opportunistic infections. Mean AST, ALT and haemoglobin levels were 127.8 ± 79.8 IU/L, 157.2 ± 50.1 IU/L and 9.1 ± 4.3 g/dl respectively. No patient tested positive for
anti-HCV antibodies.
Conclusion: The majority of patients had advanced HIV infection at baseline. There was a slow but steady increase in CD4+ cell count over one year. However only 30(29.1%) of patients achieved immune restoration. Seventy three (70.9%) of patients still had immune depletion with low CD4+ cell counts at one year of receiving HAART. Patients with low CD4 + cell counts at baseline had a steady increase of CD4+ cells over the first six months and this emphasises the need to initiate HAART early in public health policy strategy. Expedited HAART initiation

should be done in patients with CD4+ cell counts < 350 cells/µl. Delayed HAART, at low CD4+ cell counts, is associated with poor immune recovery/restoration.