BACKGROUND/STUDY OBJECTIVES: Haematological manifestations are common features in patients with HIV infections. The objectives of this study are to characterize the anaemia associated with HIV infection in adult patients seen in the University of Benin Teaching Hospital, Benin City and to determine the contributory role of iron in the anaemia of HIV infection.

STUDY DESIGN: Cross-sectional study.

METHODS: The patients consisted of 100 consecutive patients who attended the HIV clinic and those who were on admission. The biodata of these patients were obtained and blood samples were collected for full blood count, reticulocyte count, blood film, ESR, CD4+ T-Lymphocyte count, serum iron and soluble transferrin receptor (sTR) concentration measurement using standard operating procedures. Bone marrow aspiration (BMA) was obtained from 25 of these patients and examined for morphology and iron stain. Fifty age- and sex-matched healthy hospital staff and individuals who visited the clinic for voluntary counseling and testing, who were HIV negative, served as controls. Data was analyzed using descriptive and inferential statistics.

RESULTS: The mean age of the patients was 36.2 ± 10.0 years while that of the controls was 35.3 ± 9.7 years (p > 0.05) and the M : F ratio was 1 : 2.1 and 1 : 1.9 (p > 0.05) respectively. The prevalence of anaemia was 56%, leucopenia, 3%; neutropenia, 2%; lymphopenia, 16% and thrombocytopenia, 4% among patients with HIV infection. The mean serum iron concentration for both patients and controls were within normal limits but the mean concentration for the patients was significantly less than that of controls (137.7 ± 62.0 µg/dl and 156.7 ± 47.3 µg/dl respectively; p < 0.05). The mean sTR concentration for both patients and controls was 7.6 ± 4.0 µg/ml and 7.7 ± 3.2 µg/ml respectively (p > 0.05). The mean ESR for the patients was significantly higher than that of the controls (105 ± 40 mm/hr and 31 ± 23.4 mm/hr respectively; p < 0.001). The mean CD4 count was 235 ± 180 cell/µl and it correlated positively with haemoglobin (r = 0.34; p < 0.01) and TLC (r = 0.30; p< 0.01) but negatively with ESR (r = -0.30; p <
In an attempt to characterize the anaemia, the blood film was microcytic hypochromic in appearance in 53.6% of anaemic patients and 25% of non-anaemic patients. Neither serum iron nor sTR concentration could distinguished between patients who had anaemia with or without microcytic hypochromic blood film appearance. Of the 25 patients who had bone marrow aspiration, 52% were anaemic and hypocellularity was prevalent in 69.2%. Thirty-eight percent had no stainable iron in the marrow. Of these, 80% had microcytic hypochromic blood film appearance thus suggestive of iron deficiency anaemia, however 37.5% of the anaemic patients with stainable iron in the marrow also had microcytic hypochromic blood film appearance. Again serum iron and sTR concentrations could not distinguish between anaemic patients who had microcytic hypochromic blood film appearance with or without stainable iron in the BM.

CONCLUSION/RECOMMENDATIONS: This study confirms that anaemia is the most prevalent haematological feature in HIV infection and it is characterized predominantly by microcytic hypochromic blood film appearance. This may or may not be due to iron deficiency, since serum iron and sTR concentrations were within normal limits and there was stainable iron in the BM of some of the anaemic patients. Therefore, BM studies are necessary to determine which anaemic patient would benefit from iron replacement therapy.