CHOP is feasible for HIV-associated non-Hodgkin lymphoma in the ART era in Malawi

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Background

- There is no prospective study of CHOP for non-Hodgkin lymphoma (NHL) patients in sub-Saharan Africa in the antiretroviral therapy (ART) era.
- We report early data from the Kamuzu Central Hospital (KCH) Lymphoma Study in Lilongwe, Malawi.

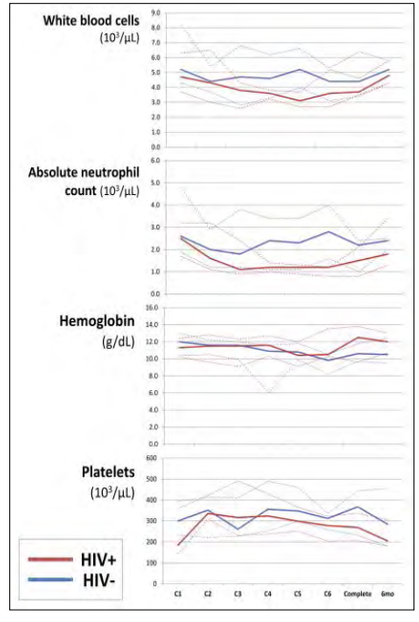


- The KCH Lymphoma Study is a prospective observational cohort study initiated in June 2013.
- KCH is located in the capital and serves as the cancer referral center for Malawi's northern and central regions.

Results (1)

- 35 patients (19 HIV+, 16 HIV-) were treated with CHOP.
- Median age was 48 years (range 22-77), 26 (74%) were male, and 20 (57%) had stage III/ IV disease.
- Clinical characteristics were similar between HIV+ and HIV- patients.
- 17 HIV+ patients (90%) were on ART for a median 18.9 months (range 0.2-98.8) at NHL diagnosis.
- Median CD4 count among HIV+ patients was 138 cells/μL (range 32-1,013), and 10 (53%) had HIV RNA <400 copies/mL.
- Cumulative CHOP dose and dose intensity were similar for HIV+ and HIV- patients (Table 1).
- HIV+ patients experienced greater leukopenia/neutropenia, with similar hemoglobin and platelet levels during CHOP (Figure 1).
- Median absolute neutrophil count (ANC) remained ≥1x10^3/μL even for HIV+ individuals.
- For HIV+ patients, white blood cell (WBC) and ANC levels returned to values similar to HIV- patients by six months.
- Grade 3/4 neutropenia occurred in more HIV+ than HIV- patients (83% vs 31%, p=0.015). Of 32 grade 3/4 neutropenia events, 29 were grade 3 and three were grade 4 (Figure 2).
- For HIV+ patients, median CD4 count increased to 180 cells/μL (range 44-369) at six months.

Figure 1. Blood counts and interquartile ranges

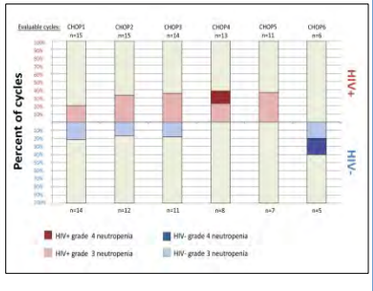


Results (2)

Table 1. Treatment course and toxicities

	HIV-positive (n=19)	HIV-negative (n=16)	P value
Total chemotherapy cycles	85	67	
Cycles per patient, median (range)	5 (1-8)	4 (1-8)	0.43
Days between cycles, median (range)	21 (19-53)	21 (18-36)	0.15
Cyclophosphamide dose per cycle, mg/m², median (range)	723 (360-817)	719 (391-825)	0.48
Doxorubicin dose per cycle, mg/m², median (range)	49 (25-63)	49 (24-54)	0.38
Received <6 cycles, n (%)	8 (53.3%)	10 (66.7)	0.71
Death	4	7	
Progression	—	1	
Toxicity	3	1	
Social	1	1	
Grade 3/4 neutropenia			
Cycles, n (%)	22/75 (29.3%)	10/60 (16.7%)	0.11
Patients, n (%)	10/12 (83.3%)	4/13 (30.8%)	0.015
Grade 3/4 anemia			
Cycles, n (%)	6/75 (8.0%)	10/60 (16.7%)	0.18
Patients, n (%)	3/12 (25.0%)	5/13 (38.5%)	0.67
Grade 3/4 non-hematologic toxicity			
Cycles, n (%)	2/75 (2.7%)	8/60 (13.3%)	0.023
Patients, n (%)	3/12 (25.0%)	4/13 (30.8%)	1.00

Figure 2. Neutropenia during CHOP



Conclusions

- In the current ART era, CHOP can be safe and feasible for NHL patients in Malawi with and without HIV who receive standardized monitoring, dose adjustment, and supportive care.

Methods

- All diagnoses are pathologically confirmed using biopsies supported by IHC and weekly telepathology consultation between pathologists in Malawi and the US.
- Adult patients with confirmed lymphoma receive a comprehensive baseline evaluation including standardized staging.
- Patients undergo longitudinal follow-up with active tracing and transportation reimbursement to promote adherence to care.
- Response is assessed using standardized criteria incorporating physical exam, chest x-ray, and abdominal ultrasound.
- For these analyses, we included adults ≥18 years enrolled from June 1, 2013 until August 31, 2014.
- Chemotherapy protocols are standardized, and HIV+ patients receive ART concurrently with chemotherapy.

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