NON-HODGKIN LYMPHOMA TREATMENT REGIMENS: Adult T-Cell Leukemia/Lymphoma (Part 1 of 2)

Clinical Trials: The NCCN recommends cancer patient participation in clinical trials as the gold standard for treatment.

Cancer therapy selection, dosing, administration, and the management of related adverse events can be a complex process that should be handled by an experienced health care team. Clinicians must choose and verify treatment options based on the individual patient; drug dose modifications and supportive care interventions should be administered accordingly. The cancer treatment regimens below may include both U.S. Food and Drug Administration-approved and unapproved indications/regimens. These regimens are provided only to supplement the latest treatment strategies.

These Guidelines are a work in progress that may be refined as often as new significant data become available. The NCCN Guidelines® are a consensus statement of its authors regarding their views of currently accepted approaches to treatment. Any clinician seeking to apply or consult any NCCN Guidelines® is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment. The National Comprehensive Cancer Network makes no warranties of any kind whatsoever regarding their content, use, or application and disclaims any responsibility for their application or use in any way.

Primary Therapy—Chronic Smoldering¹

Note: All recommendations are Category 2A unless otherwise indicated.		
Zidovudine + alpha-interferon ²⁻⁶	Induction Therapy Zidovudine 1g orally daily + alpha-interferon 9 million units SC daily for at least 2 months, followed by Maintenance Therapy Zidovudine 1g orally daily + alpha-interferon 9 million units SC daily for at least 2 months, followed by	
	Zidovudine 600mg orally daily + alpha-interferon 4.5 million units SC daily for at least 1 year.	
Primary Therapy—Acute ¹		
Zidovudine + alpha-interferon ²⁻⁶	Induction Therapy Zidovudine 1g orally daily + alpha-interferon 9 million units SC daily for at least 2 months, followed by	
	Maintenance Therapy Zidovudine 600mg orally daily + alpha-interferon 4.5 million units SC daily for at least 1 year.	
CHOP ^{7a}	Day 1: Cyclophosphamide 750mg/m² IV + doxorubicin 50mg/m² IV + vincristine 1.4mg/m² IV (max dose 2mg), plus Days 1-5: Prednisone 100mg orally daily. Repeat cycle every 3 weeks for 6-8 cycles.	
CHOEP ^{8,9a}	Days 1-4: Etoposide 50mg/m²/day continuous IV infusion + doxorubicin 10mg/m²/day continuous IV infusion + vincristine 0.4mg/m²/day continuous IV infusion Days 1-5: Prednisone 60mg/m² orally daily Day 5: Cyclophosphamide 750mg/m² IV over 15 minutes. Repeat cycle every 3 weeks for 6-8 cycles.	
Dose-adjusted EPOCH ^{10a}	Days 1-4: Etoposide 50mg/m²/day continuous IV infusion + doxorubicin 10mg/m²/day continuous IV infusion + vincristine 0.4mg/m²/day continuous IV infusion Days 1-5: Prednisone 60mg/m² orally BID Day 5: Cyclophosphamide 750mg/m² IV over 15 minutes. Repeat cycle every 3 weeks for 6-8 cycles. Adjust doses based on absolute neutrophil count.	
HyperCVAD ^{11a}	Cycle 1, 3, 5, 7: Days 1-3: Cyclophosphamide 300mg/m² IV over 2 hours every 12 hours for 6 doses + mesna 600mg/m²/day continuous IV infusion starting 1 hour before cyclophosphamide until 12 hours after completion Day 4: Doxorubicin 50mg/m² IV over 24 hours Days 1-4 and Day 11-14: Dexamethasone 40mg IV or orally Days 4 and 11: Vincristine 2mg IV.	
	Cycle 2, 4, 6, 8: Day 1: Methotrexate 200mg/m² IV over 2 hours, then 800mg/m² IV over 22 hours + leucovorin 50mg IV every 6 hours beginning 12 hours after completion of methotrexate Days 2 and 3: Cytarabine 3,000mg/m² (1,000mg/m² for patients ≥60 years old) IV over 2 hours every 12 hours.	
	CNS Prophylaxis Day 2: Methotrexate 12mg intrathecally Day 7: Cytarabine 100mg intrathecally.	
	continued	

NON-HODGKIN LYMPHOMA TREATMENT REGIMENS: Adult T-Cell Leukemia/Lymphoma (Part 2 of 2)

Primary Therapy—Lymphoma ¹	
REGIMEN	DOSING
CHOP ^{7a}	Day 1: Cyclophosphamide 750mg/m² IV + doxorubicin 50mg/m² IV + vincristine 1.4mg/m² IV (max dose 2mg), <u>plus</u> Days 1-5: Prednisone 100mg orally daily. Repeat cycle every 3 weeks for 6-8 cycles.
CHOEP ^{8,9a}	Days 1-4: Etoposide 50mg/m²/day continuous IV infusion + doxorubicin 10mg/m²/day continuous IV infusion + vincristine 0.4mg/m²/day continuous IV infusion Days 1-5: Prednisone 60mg/m² orally daily Day 5: Cyclophosphamide 750mg/m² IV over 15 minutes. Repeat cycle every 3 weeks for 6-8 cycles. Adjust doses based on absolute neutrophil count.
Dose-adjusted EPOCH ^{10a}	Days 1-4: Etoposide 50mg/m²/day continuous IV infusion + doxorubicin 10mg/m²/day continuous IV infusion + vincristine 0.4mg/m²/day continuous IV infusion IV infusion Days 1-5: Prednisone 60mg/m² orally BID Day 5: Cyclophosphamide 750mg/m² IV over 15 minutes. Repeat cycle every 3 weeks for 6-8 cycles. Adjust doses based on absolute neutrophil count.
HyperCVAD ^{11a}	Cycle 1, 3, 5, 7: Days 1–3: Cyclophosphamide 300mg/m² IV over 2 hours every 12 hours for 6 doses + mesna 600mg/m²/day continuous IV infusion starting 1 hour before cyclophosphamide until 12 hours after completion Day 4: Doxorubicin 50mg/m² IV over 24 hours Days 1–4 and Day 11–14: Dexamethasone 40mg IV or orally Days 4 and 11: Vincristine 2mg IV. Cycle 2, 4, 6, 8: Day 1: Methotrexate 200mg/m² IV over 2 hours, then 800mg/m² IV over 22 hours + leucovorin 50mg IV every 6 hours beginning 12 hours after completion of methotrexate Days 2 and 3: Cytarabine 3,000mg/m² (1,000mg/m² for patients ≥60 years old) IV over 2 hours every 12 hours.
8. There are no published date records	CNS Prophylaxis Day 2: Methotrexate 12mg intrathecally Day 7: Cytarabine 100mg intrathecally. regarding the use of these regimens: however, they are used at NCCN Member Institutions for

There are no published data regarding the use of these regimens; however, they are used at NCCN Member Institutions for the treatment of adult T-cell leukemia/lymphoma.

References

- 1. NCCN Clinical Practice Guidelines in Oncology™. Non-Hodgkin's Lymphomas. v 3.2016. Available at: http://www.nccn.org/professionals/physician_gls/pdf/nhl.pdf. Accessed December 15, 2016.
- Bazarbachi A, Hermine O. Treatment with a combination of zidovudine and alpha-interferon in naïve and pretreated adult T-cell leukemia/lymphoma patients. J Acquir Immune Defic Syndr Hum Retrovirol. 1996;13 Suppl 1:S186-190.
- 3. Bazarbachi A, Plumelle Y, Carlos Ramos J, et al. Meta-analysis on the use of zidovudine and interferon-alfa in adult T-cell leukemia/lymphoma showing improved survival in the leukemic subtypes. *J Clin Oncol.* 2010;28:4177-4183.
- Hermine O, Allard I, Levy V, et al. A prospective phase II clinical trial with the use of zidovudine and interferon-alpha in the acute and lymphoma forms of adult T-cell leukemia/lymphoma. Hematol J. 2002:3:276-282.
- Hodson A, Chrichton S, Monoto S, et al. Use of zidovudine and interferon alfa with chemotherapy improves survival in both acute and lymphoma subtypes of adult T-cell leukemia/lymphoma. J Clin Oncol. 2011;29:4696-4701.

- White JD, Wharfe G, Stewart DM, et al. The combination of zidovudine and interferon alpha-2B in the treatment of adult T-cell leukemia/lymphoma. Leuk Lymphoma. 2001;40:287-294.
- Czuczman, MS, Weaver R, Alkuzweny B, et al. Prolonged clinical and molecular remission in patients with low-grade or follicular non-Hodgkin's lymphoma treated with rituximab plus CHOP chemotherapy: 9-year follow-up. J Clin Oncol. 2004:23:4711.
- Wilson WH, Bryant G, Bates S, et al. EPOCH chemotherapy: toxicity and efficacy in relapsed and refractory non-Hodgkin's lymphoma. J Clin Oncol. 1993;11:1573.
- Gutierrez, M, Chabner BA, Pearson D, et al. Role of a doxorubicincontaining regimen in relapsed and resistant lymphomas: An 8-year follow-up study of EPOCH. J Clin Oncol. 2000;18:3633.
- Wilson WH, Grossbard ML, Pittaluga S, et al. Dose-adjusted EPOCH chemotherapy for untreated large B-cell lymphomas: a pharmacodynamic approach with high efficacy. Blood. 2002;99:2685.
- Thomas, DA, O'Brien S, Cortes J, et al. Outcome with the hyper-CVAD regimens in lymphoblastic lymphoma. *Blood*. 2004;104:1624.