

Evidence Discussion (ONC 26.1-26.2)

Acute Leukemias

- Imaging for Hairy cell leukemia is not generally supported, there is no imaging standard for staging of this entity (NCI 2024, Troussard 2024).
- For both lymphoblastic leukemias and myelogenous leukemias, as well as lymphoblastic lymphomas:

Suspected/Diagnosis

- CXR should be done to assess for mediastinal mass in suspected cases, and if any suspicion of mediastinal mass at CT chest should be performed to assess airway for safety of anesthesia for workup.
- For suspected T cell histology or lymphoblastic lymphoma, CT neck, chest, abdomen and pelvis or PET/CT for guidance of workup and prior to anesthesia to maintain safety in the event of masses (Inaba 2023, Shah 2023).

Initial staging

- In addition to studies listed under 'suspected' above, CNS imaging is supported for CNS symptoms, to allow intervention for mass effect or CNS bleeding or clotting, but has not been shown to improve the detection of CNS disease compared with CNS alone in the absence of symptoms (Inaba 2023, Shah 2023, Ranta 2016). Thus, CNS imaging without symptoms exposes patients to potential radiation and unnecessary procedures with risk of incidental findings.
- Echocardiogram is supported to enable safest dose adjustments for cardiotoxic chemotherapy. (Inaba 2023, Shah 2023)

Restaging

- Advanced imaging does not change management except in the setting of bulky nodal disease at diagnosis, for which cross sectional imaging at new therapy phases is supported to make treatment decisions. PET/CT is a significant radiation exposure and low-yield for lesions less than 8mm and is thus only supported for treatment decisions where CT is equivocal and lesion at least 8mm. (Inaba 2023, Shah 2023, ASCO 2021)
- Bleeding and sinus venous thrombosis may occur with asparaginase treatment, and thus MRA/MRV are supported should CNS symptoms arise during/recently after treatment with asparaginase (Inaba 2023).
- To minimize risk of infectious complications, advanced imaging during periods of deep immunosuppression/neutropenia is permitted based on provider discretion for clinical suspicion of infection and treatment decisions. (Baden 2023, Shah 2023)

Surveillance

- Guidelines for MRI for osteonecrosis (CT for contraindication or fractures) are designed to minimize risks of excessive vs delayed corticosteroids, and for preoperative planning (Ha 2022)
- Imaging for surveillance for recurrence without symptoms for liquid tumors is low yield, potentially increases radiation risk and sedation exposure, and is thus only supported for follow up of bulky lesions or suspected infection (Inaba 2023, Shah 2023, Baden 2023, ASCO 2021)

References

1. National Cancer Institute PDQ Cancer Information Summaries: adult treatment. Hairy cell Leukemia. [PDQ® Adult Cancer Treatment Summaries - NCI](#). Accessed 4/17/2024.
2. Troussard X, Maître E, Paillassa J. Hairy cell leukemia 2024: Update on diagnosis, risk-stratification, and treatment-Annual updates in hematological malignancies. *Am J Hematol*. 2024 Apr;99(4):679-696. doi: 10.1002/ajh.27240. Epub 2024 Mar 5. PMID: 38440808.
3. Inaba H, Teachey D, Annesley C , et al. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Pediatric Acute Lymphoblastic Leukemia Version 4.2023 — February 07, 2024 © National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed [March 12, 2024]. To view the most recent and complete version of the guideline, go online to NCCN.org.
4. Shah B, Mattison R, Abboud R , et al. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Acute Lymphoblastic Leukemia Version 4.2023 — February 05, 2024 © National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed [March 12, 2024]. To view the most recent and complete version of the guideline, go online to NCCN.org.
5. Ranta S, Palomäki M, Levinsen M, et al. Role of neuroimaging in children with Acute Lymphoblastic Leukemia and central nervous system involvement at diagnosis. *Pediatr Blood Cancer*. 2016;64:64-70. doi:10.1002/pbc.26182/epdf.
6. Baden LR, Swaminathan S, Almyroudis N, et al. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Prevention and Treatment of Cancer-Related Infections © National Comprehensive Cancer Network, Inc. 2023. All rights reserved. Accessed [March 12, 2024]. To view the most recent and complete version of the guideline, go online to NCCN.org.
7. ASCO. (2021). *Choosing Wisely*. Retrieved from <https://old-prod.asco.org/news-initiatives/current-initiatives/cancer-care-initiatives/value-cancer-care/choosing-wisely>

8. Shah B, Mattison R, Abboud R , et al. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Acute Lymphoblastic Leukemia Version 4.2023 — February 05, 2024 © National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed [March 12, 2024]. To view the most recent and complete version of the guideline, go online to [NCCN.org](https://www.nccn.org).
9. Ha AS, Chang EY, Bartolotta RJ, et. al. Expert Panel on Musculoskeletal Imaging. ACR Appropriateness Criteria® Osteonecrosis. Am Coll Radiol (ACR); Date of Origin: 2016. Revised: 2022.