# Acute Lymphoblastic Leukemia and Lymphoblastic Lymphoma (ALL) – Adult

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson’s specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient’s care. This algorithm should not be used to treat pregnant women.

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1 Greater than or equal to 18 years old
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**Note:** Consider clinical trials as treatment options for eligible patients. Stem Cell Transplant (SCT) guidelines are not included with this algorithm. Leukemia patients should be referred and treated at a Comprehensive Cancer Center.

### PATIENT PRESENTATION

| Philadelphia negative precursor B (Pre B) lymphoblastic leukemia/lymphoma |
| CD19, CD10 (±), CD20 (±), CD22 (±) |
| MPO (-) TdT (+) |
| BCR-ABL (-) |

### TREATMENT

#### Age greater than or equal to 60 years
- Consider clinical trial:
  - Hyper-CVD plus inotuzumab ozogamicin plus blinatumomab with or without rituximab

#### Age greater than 18 years to 59 years
- Hyper-CVAD with or without rituximab
- Consider clinical trial:
  - Hyper-CVAD with blinatumomab
  - Hyper-CVAD with inotuzumab ozogamicin

### ASSESSMENT OF RESPONSE

- **Yes**
  - Consolidation/maintenance
  - Blinatumomab or inotuzumab ozogamicin

- **No**

### POST-REMISSION THERAPY/MINIMAL RESIDUAL DISEASE

- **Surveillance**
  - Salvage therapy clinical trial: Mini-HCVD inotuzumab ozogamicin plus blinatumomab
  - Chimeric antigen receptor (CAR) T-cell therapy
  - Blinatumomab plus low dose chemotherapy (mini-HCVD)
  - Low dose inotuzumab ozogamicin

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1. See **Physical Activity, Nutrition**, and **Tobacco Cessation** algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice
2. Leukemia Newsletter: [http://www.mdanderson.org/leukemia](http://www.mdanderson.org/leukemia) (available programs-treatment priorities)
3. Hyper-CVD (hyper-fractionated cyclophosphamide, vincristine, dexamethasone) plus inotuzumab ozogamicin; rituximab if CD20 greater than or equal to 20%
4. Hyper-CVAD (hyper-fractionated cyclophosphamide, vincristine, doxorubicin, dexamethasone); rituximab if CD20 greater than or equal to 20%
5. Hyper-CVAD (hyper-fractionated cyclophosphamide, vincristine, doxorubicin, dexamethasone); ofatumumab if CD20 greater than or equal to 1%
6. Failure after induction with hyper-CVAD based regimen means no response after 2 cycles of chemotherapy
7. Mini-HCVD (hyper-fractionated cyclophosphamide, vincristine, dexamethasone) plus inotuzumab ozogamicin

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Department of Clinical Effectiveness V5
Acute Lymphoblastic Leukemia and Lymphoblastic Lymphoma (ALL) – Adult

PATIENT PRESENTATION

- Philadelphia chromosome (Ph) positive acute lymphoblastic leukemia
- CD19, CD10 (±), CD20 (±), CD22 (±)
- CD13 (±), CD33 (±), CD117 (-)
- MPO (-)
- TdT (+)
- t(9;22)(q24;q11.2)
- BCR-ABL (+)

1. Age greater than or equal to 60 years
   - Hyper-CVAD plus dasatinib with or without rituximab or
   - Consider clinical trial
     - Hyper-CVAD plus ponatinib with or without rituximab or
     - Blinatumomab plus ponatinib or
     - Inotuzumab ozogamicin plus bosutinib or
     - Hyper-CVAD plus ponatinib

2. Age less than 60 years
   - Hyper-CVAD plus dasatinib with or without rituximab or
   - Consider clinical trial
     - Hyper-CVAD plus ponatinib with or without rituximab or
     - Hyper-CVAD plus ponatinib

ASSESSMENT OF RESPONSE

- Complete remission?
  - Yes: Blinatumomab or Consolidation/maintenance or Allogeneic SCT
  - No:
    - Assess ABL mutation status
      - Consider clinical trial
      - Salvage therapy:
        - Blinatumomab plus ponatinib
        - Hyper-CVAD plus ponatinib
        - Inotuzumab ozogamicin plus bosutinib
        - CAR T-cell therapy

POST-REMISSION THERAPY

- Surveillance

1. See Physical Activity, Nutrition, and Tobacco Cessation algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice
2. Hyper-CVAD (hyper-fractated cyclophosphamide, vincristine, dexamethasone) plus inotuzumab ozogamicin; rituximab if CD20 greater than or equal to 20%
   - Hyper-CVAD (hyper-fractated cyclophosphamide, vincristine, doxorubicin, dexamethasone); rituximab if CD20 greater than or equal to 20%
4. Failure after induction with hyper-CVAD based regimen means no response after 2 cycles of chemotherapy
Acute Lymphoblastic Leukemia and Lymphoblastic Lymphoma (ALL) – Adult

PATIENT PRESENTATION

Burkitt or Burkitt-like leukemia/lymphoma

- slg (+), CD20 (+)
- MPO (-)
- TdT (-)
- BCR-ABL (-)
- c-myc (+)
- t(8;14)(q24.1;q32)
- t(8;22)(q24;q11)
- t(2;8)(p12;q24)

TREATMENT

- Hyper-CVAD with rituximab
- Hyper-CVAD with ofatumumab or
- EPOCH with ofatumumab
- Consider clinical trial

ASSESSMENT OF RESPONSE

- Complete remission?

POST-REMISSION THERAPY

- Yes
  - Consolidation
  - Surveillance
- No
  - Consider clinical trial
  - Salvage therapy:
    - EPOCH with ofatumumab or
    - CAR T-cell therapy
  - Surveillance

Note: Consider clinical trials as treatment options for eligible patients. Stem Cell Transplant (SCT) guidelines are not included with this algorithm. Leukemia patients should be referred and treated at a Comprehensive Cancer Center.

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1 See Physical Activity, Nutrition, and Tobacco Cessation algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice
2 Hyper-CVAD (hyper-fractionated cyclophosphamide, vincristine, doxorubicin, dexamethasone) plus rituximab
3 Hyper-CVAD (hyper-fractionated cyclophosphamide, vincristine, doxorubicin, dexamethasone) plus ofatumumab
4 EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin) plus ofatumumab
5 Leukemia Newsletter: http://www.mdanderson.org/leukemia (available programs-treatment priorities)
6 Failure after induction with hyper-CVAD based regimen means no response after 2 cycles of chemotherapy
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PATIENT PRESENTATION

Precursor T lymphoblastic leukemia/lymphoma

- CD1(±), CD3 (±), CD5 (±), CD7 (±)
- CD4 (±), CD8 (±)
- MPO (-)
- TdT (+)
- BCR-ABL (-)

AGE GREATER THAN 18 YEARS

- Hyper-CVAD2 with nelarabine

COMPLETE REMISSION?

Yes →
- Consolidation/maintenance
- Radiation therapy if mediastinal disease

No3 →
- Consider clinical trial4
- Salvage therapy

POST-REMISSION THERAPY

Surveillance

1 See Physical Activity, Nutrition, and Tobacco Cessation algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice
2 Hyper-CVAD (hyper-fractionated cyclophosphamide, vincristine, doxorubicin, dexamethasone)
3 Failure after induction with hyper-CVAD based regimen means no response after 2 cycles of chemotherapy
4 Leukemia Newsletter: http://www.mdanderson.org/leukemia (available programs-treatment priorities)
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SUGGESTED READINGS


Continued on next page
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SUGGESTED READINGS - continued


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