THE UNIVERSITY OF TEXAS MD Anderson Cancer Center
Making Cancer History®

Acute Myelogenous Leukemia – Adult (Age ≥ 18 years)

Notes: Consider Clinical Trials as treatment options for eligible patients. Stem cell transplant guidelines are not included with this algorithm. Leukemia patients should be referred and treated at a comprehensive cancer center.

INITIAL EVALUATION[1]

Acute myelogenous leukemia (AML)

- CBC with platelets, comprehensive metabolic panel
- Bone marrow exam with cytogenetics and molecular analysis[2]
- Echocardiogram
- Chest x-ray

TREATMENT

Acute promyelocytic leukemia

- Arsenic trioxide plus all-trans retinoic acid (ATRA)
- For patients with white blood cell count > 10 K/microliter, add idarubicin and/or gemtuzumab ozogamicin[3]

t(8;21) and inv(16)

- Fludarabine, cytarabine, filgrastim plus gemtuzumab ozogamycin
  or
- Clinical trial[3]

Other

Age < 60 years

- Idarubicin plus cytarabine with or without cladribine or fludarabine
  or
- Clinical trial[3]
- If FLT3 mutated, add midostaurin or sorafenib or gilteritinib

Age ≥ 60 years or not eligible for intensive chemotherapy

- Low intensity therapy[3]
  - Hypomethylating agent (azacitidine or decitabine) plus venetoclax
  - Low dose cytarabine plus cladribine plus venetoclax alternating with hypomethylating agent (azacitidine or decitabine) plus venetoclax
  - If IDH mutated, add enasidenib or ivosidenib

  or
- Clinical trial[3]
- If FLT3 mutated add midostaurin or sorafenib or gilteritinib

EVALUATION

Repeat bone marrow exam approximately 2-3 weeks after initiation of therapy depending on the induction regimen

Complete remission?

Yes

- Maintenance
  - Oral azacitidine or
  - Clinical trial[3]

  or
- Surveillance
  - Measurable residual disease monitoring

  or
- Stem cell transplant (if high risk) or consolidation, then consider maintenance or surveillance

No

- Clinical trial[3]
- Discuss Goal Concordant Care (GCC) with patient or if clinically indicated, with Surrogate Decision-Maker (SDM)[4]

[1] See Physical Activity, Nutrition, and Tobacco Cessation algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice
[2] Consider MD Anderson approved biomarkers
[3] See Leukemia Clinical Trials
[4] GCC should be initiated by the Primary Oncologist. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients or if clinically indicated the SDM should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

Department of Clinical Effectiveness V7 rev
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SUGGESTED READINGS

Kadia, T. M., Ravandi, F., Cortes, J., & Kantarjian, H. (2015). Toward individualized therapy in acute myeloid leukemia: A contemporary review. *JAMA Oncology*, *1*(6), 820-828. https://doi.org/10.1001/jamaoncol.2015.0617

Kantarjian, H., Kadia, T., DiNardo, C., Daver, N., Borthakur, G., Jabbour, E., . . . Ravandi, F. (2021). Acute myeloid leukemia: Current progress and future directions. *Blood Cancer Journal, 11*(2), 41-65. https://doi.org/10.1038/s41408-021-00425-3

Maiti, A. & Konopleva, M.Y. (2022). How we incorporate venetoclax in treatment regimens for acute myeloid leukemia. *The Cancer Journal, 28*(1), 2-13. https://doi.org/10.1097/PPO.0000000000000567

MD Anderson Institutional Policy #CLN1202 - Advance Care Planning Policy
Advance Care Planning (ACP) Conversation Workflow (ATT1925)

National Comprehensive Cancer Network. (2022). *Acute Myeloid Leukemia* (NCCN Guideline Version 1.2022). Retrieved from https://www.nccn.org/professionals/physician_gls/pdf/aml.pdf

Short, N. J., Konopleva, M., Kadia, T. M., Borthakur, G., Ravandi, F., DiNardo, C. D., & Daver, N. (2020). Advances in the treatment of acute myeloid leukemia: New drugs and new challenges. *Cancer Discovery, 10*(4), 506-525. https://doi.org/10.1158/2159-8290.CD-19-1011

Yilmaz, M., Kantarjian, H., & Ravandi, F. (2021). Acute promyelocytic leukemia current treatment algorithms. *Blood Cancer Journal, 11*(6), 123-131. https://doi.org/10.1038/s41408-021-00514-3

DEVELOPMENT CREDITS

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