Acute Promyelocytic Leukemia: Guideline to Diagnosis and Follow-up

Clinical or morphologic suspicion for acute promyelocytic leukemia (APL)

Testing begins with:
- 70016 / Hematopathology Consultation, Wet Tissue
- LCMS / Leukemia/Lymphoma Immunophenotyping by Flow Cytometry
- Cytochemical stains as determined by reviewing pathologist

Bone marrow, perform:
- CHRBM / Chromosome Analysis, Hematologic Disorders, Bone Marrow
- PMLR / PML/RARA Quantitative, PCR

Peripheral blood studies not indicated
FISH studies not indicated

Bone marrow morphology and/or flow cytometric immunophenotyping: Acute leukemia, possible APL?

YES

Bone marrow, perform:
- CHRBM / Chromosome Analysis, Hematologic Disorders, Bone Marrow
- See Acute Leukemia guidelines

Bone marrow, perform:
- CHRBM / Chromosome Analysis, Hematologic Disorders, Bone Marrow
- Do not perform
- PML/RARA assays

Peripheral blood – no studies indicated

Positive for: t(15;17)(q24;q21) and PML/RARA

Acute promyelocytic leukemia (APL)

Negative for: t(15;17)(q24;q21) and PML/RARA

No residual APL

NO

Residual APL by genetic or molecular studies

Follow-up evaluation of acute promyelocytic leukemia (APL); no morphologic features of APL seen

Bone marrow, perform:
- CHRBM / Chromosome Analysis, Hematologic Disorders, Bone Marrow
- PMLR / PML/RARA Quantitative, PCR

Peripheral blood studies not indicated
FISH studies not indicated

Positive for: t(15;17)(q24;q21) and PML/RARA

No residual APL

Negative for: t(15;17)(q24;q21) and PML/RARA

*Chromosome and genetic studies for PML/RARA should not be performed until the end of consolidation therapy as during initial consolidation therapy, positive results are expected and are of no or limited clinical value.

**Peripheral blood studies for residual disease in APL are not recommended; bone marrow studies have, on average, a 1.5 log increase in sensitivity as compared to peripheral blood.

***FISH studies have a lower sensitivity than PCR methods for residual disease detection and are not recommended for APLs that have a PML/RARA detectable by PCR.

***For APL patients with variant translocations, for example t(11;17), PCR studies will not be successful. FISH studies should detect these uncommon translocations and is the preferred methodology for follow-up studies in those patients.