Burkitt and Double-Hit Lymphomas

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. This algorithm should not be used to treat pregnant women.

Note: Consider Clinical Trials as treatment options for eligible patients.

**DIAGNOSIS**

**ESSENTIAL:**
- Hematopathology review of all slides with at least one paraffin block representative of the tumor.
- Rebiopsy if consult material is nondiagnostic. FNA’s are generally inadequate. Recommend core or excisional biopsy.
- Adequate immunophenotyping to establish diagnosis
  - Paraffin Panel:
    - CD3, CD10, CD20, CD45 (LCA), Ki-67, BCL2, BCL6, and TdT
  - Flow cytometry immunophenotyping (optional if paraffin IHC has been performed): kappa/lambda light chains, IgM, CD3, CD5, CD10, CD19, CD20, CD45, and TdT
- Molecular genetic analysis
  - For Burkitt lymphoma: FISH to detect MYC gene rearrangements
  - For Double-hit lymphoma: FISH to detect the BCL2 and BCL6 gene rearrangements

**OF USE IN CERTAIN CIRCUMSTANCES:**
- FISH for BCL2 and BCL6 rearrangements
- In situ hybridization: EBER

**STRONGLY RECOMMENDED:**
- FNA or core biopsy for tissue banking by protocol
- Perform gene mutation panel if available

**INITIAL EVALUATION**

- Physical exam:
- Performance status (ECOG)
- B symptoms (fever, sweats, weight loss)
- CBC with differential, albumin, AST, ALT, total bilirubin, alkaline phosphorus, serum calcium, uric acid, phosphate, magnesium, BUN, creatinine, LDH
- Screening for HIV1 and 2, hepatitis B and C (HBcAb, HBaAg, HCVAb)
- Chest X-ray, PA and Lateral
- CT with contrast of neck, chest, abdomen and pelvis
- Echo or MUGA
- Lumbar Puncture with cytology evaluation
- Bilateral bone marrow biopsy with aspirate
- PET/CT Scan

**Useful in selected cases:**
- UGI/barium enema/endoscopy
- MRI of brain with gadolinium or CT of brain
- Pregnancy test in women of childbearing potential
- Discussion of fertility issues and sperm banking

See Page 2 for Clinical Presentations and Primary Treatment
INDUCTION THERAPY

Burkitt Lymphoma
- Clinical Trial
- Dose adjusted Rituximab and EPOCH (Etoposide, Prednisone, Vincristine, Cyclophosphamide, Doxorubicin) with intrathecal chemotherapy and GCSF
- Rituximab and HCVAD (Cyclophosphamide, Vincristine, Doxorubicin, Dexamethasone) alternately with Rituximab and Methotrexate and Cytarabine with intrathecal chemotherapy and GCSF
- Rituximab and CODOX-M/ Rituximab and IVAC (Cyclophosphamide, Vincristine, Doxorubicin, high-dose Methotrexate alternately with Ifosfamide, Etoposide, high-dose Cytarabine) with intrathecal chemotherapy and GCSF

Double- Hit or Triple- Hit Lymphoma
- Clinical Trial
- Regimens as above for Burkitt Lymphoma
- Consideration of consolidation in 1st complete remission with high dose chemotherapy and Autologous Stem Cell Transplantation (ASCT) in selected patients

Note: Consider Clinical Trials as treatment options for eligible patients.

1R-CHOP: Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, Prednisone is not adequate adequate therapy

2GCSF: Granulocyte Colony-Stimulating Factor (Filgrastim or Pegfilgrastim)
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**RESPONSE EVALUATION**

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<th>Complete Response (CR)</th>
<th>Partial response (PR), Stable Disease, Progressive Disease and recurrence</th>
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**FOLLOW-UP**

Recommend to continue:
- Routine follow-up and management with infectious disease specialists
- Routine cancer screening tests with primary cancer physician
- Year -2: Every 3-4 months
  - Physical exam and labs
  - Repeat CT’s with contrast
- Years 3-5: Every 6 months
  - Physical exam and labs
  - Repeat CT’s with contrast
- Year 5 and beyond
  - Physical exam and labs

- Clinical Trial
- Consider non-overlapping chemotherapy option per DLBCL guidelines
- Consider high dose chemotherapy plus ASCT for patients who enter into second remission with good performance status and well controlled concomitant medical issues

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1 By Revised Response Criteria for Malignant Lymphoma (see suggested readings)
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**SUGGESTED READINGS**


This practice guideline is based on majority expert opinion of the Lymphoma Center Faculty at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following medical oncologists, radiation oncologists, surgical oncologists, and interventional radiologists:

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Note: Consider Clinical Trials as treatment options for eligible patients.

DEVELOPMENT CREDITS

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