Oncology Nursing Grand Rounds 2025

Lymphoma 101

Pathophysiology, Diagnosis, and Management

Advocate Health Care | Aurora Health Care

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August 14, 2025| Tara Johnson, APRN, CNP

Learning Objectives

At the end of this session, learners should be able to:

- Identify clinical symptoms that would be concerning for lymphoma, including common "B symptoms."
- Demonstrate a diagnostic approach to evaluating a patient with lymphadenopathy.
- Compare and contrast different treatment options for lymphoma, including chemotherapy, radiation therapy, immunotherapy, and CAR-T cell therapy
- Discuss long term follow-up and monitoring for patients with lymphoma.

IPCE Designation and Accreditation

Accreditation Statement
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Credit Statement(s)
American Nurses Credentialing Center (ANCC)
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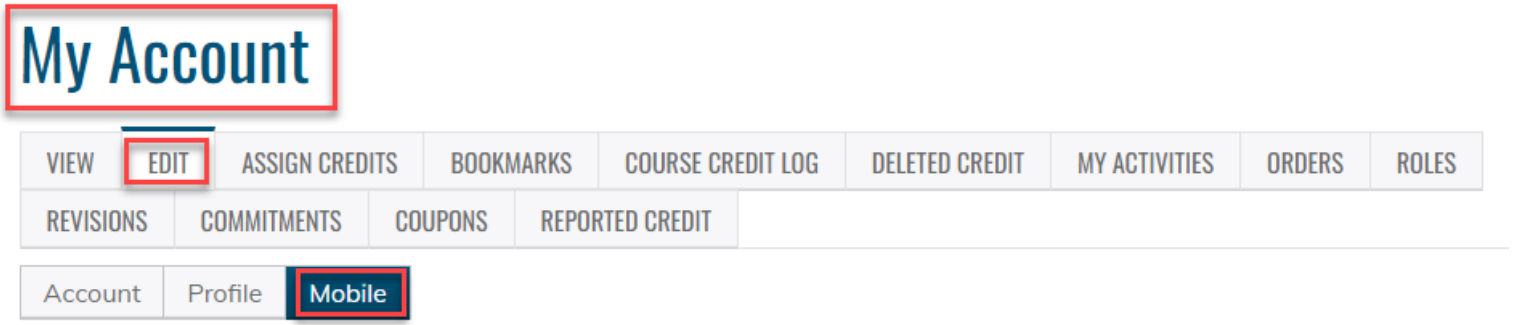

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Disclosures

The planner(s) and speaker(s) have indicated that there are no relevant financial relationships with any ineligible companies to disclose.

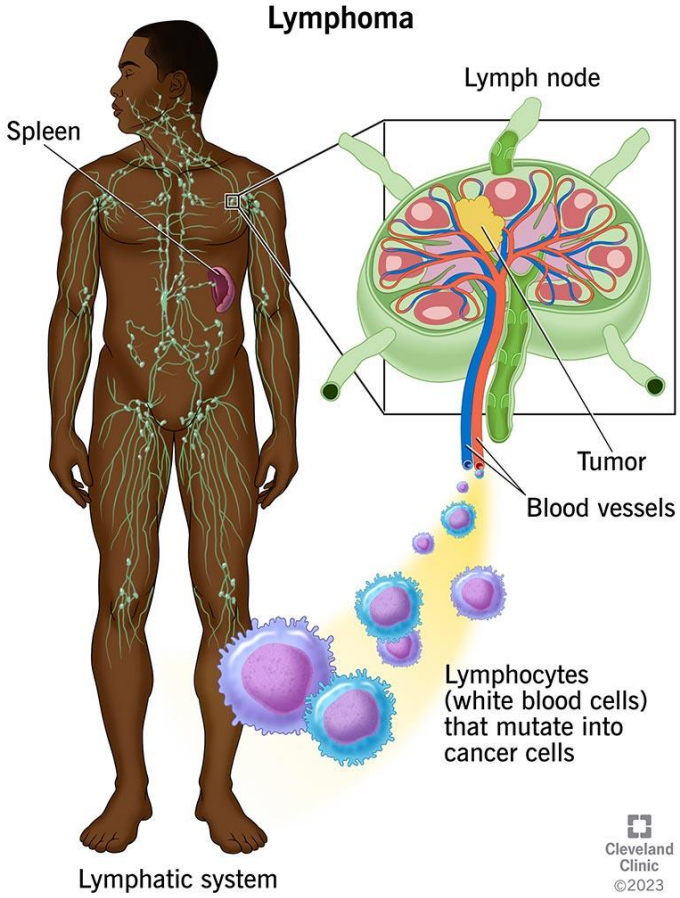
What are Lymphomas?

- Everyone has lymphocytes: white blood cells which have a role in immune regulation
    - Circulate through the lymphatic system (including >600 lymph nodes) and all organs of the body
- Lymphomas are cancers of the lymphatic system and a component of the immune system
    - Blood cancer
- Lymphomas occur when these cells learn to grow without an infection, inflammation, trauma
- Most often present in lymph nodes but can present in any organ system
    - Gastrointestinal tract, Bone/Bone marrow, Central Nervous system, Liver

Meet your patient

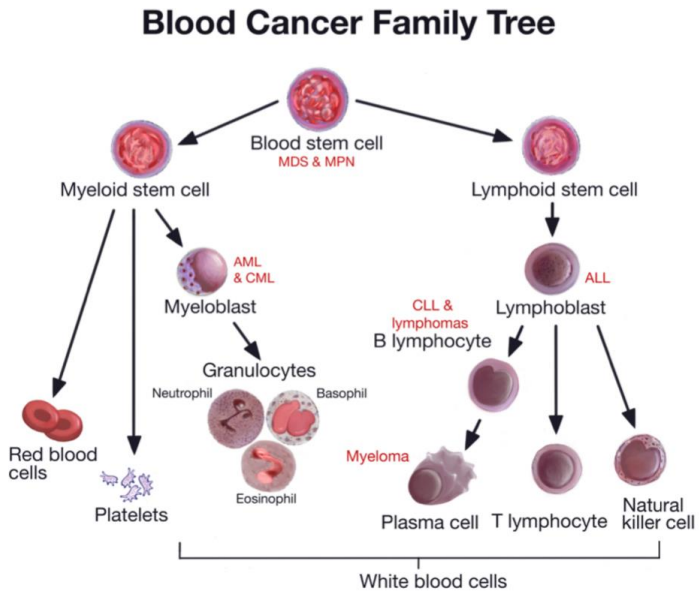
You are working at a PCP office. Your patient, Anna is a 48 year old female with a PMH of obesity and she presents for an annual visit. She complains of painless swollen lymph nodes in her neck. She says the lymph nodes have been there about a month since she had a cold. She has a slight fever to 99.9 but the remainder of vital signs are stable. Her throat is red and erythematous, and she has two palpable submandibular lymph nodes. When she was weighed by the medical assistant, she was elated she had lost 20 lbs in the past month! She mentions how much of a pain early menopause is because she has these horrible night sweats. As the RN caring for the patient, you anticipate which orders:

1. Strep swab, Influenza panel, Augmentin prescription
2. GLP-1 prescription
3. Serum CBC, CMP, LDH, CT neck
4. Prescription for estrogen for night sweats



Source : [Lymphoma: Symptoms, Causes and Treatment]

Lymphoma Pathophysiology



[Leukemia, lymphoma or both? The curious case of CLL and SLL - Blood Cancer Uncensored]

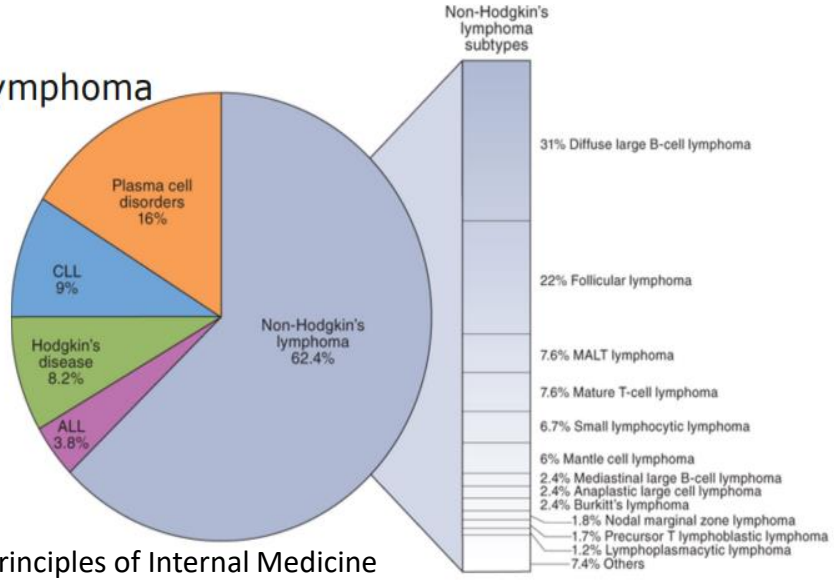
When you hear hoofbeats, think horses not zebras!

- Infections
  - Viral infections: EBV (mono), CMV, HIV, Hepatitis, Common Cold!
  - Fungal infections: Histoplasmosis, Cryptococcus
  - Bacterial infections: Tuberculosis, West Nile Virus, Strep Throat
- Autoimmune Conditions
  - Lupus, Rheumatoid Arthritis
- A study from American Family Physician found that ~1% of patients that present to a primary care physician with swollen lymph nodes have cancer
- Think Zebra- older patient, painful lymph node, firm lymph node

Lymphoma Incidence

- Non Hodgkin's lymphoma accounts for about 4% of all cancers
- About 80,000 new cases of Non-Hodgkin's Lymphoma per year (both adults and children)
- >90 forms of Lymphoma

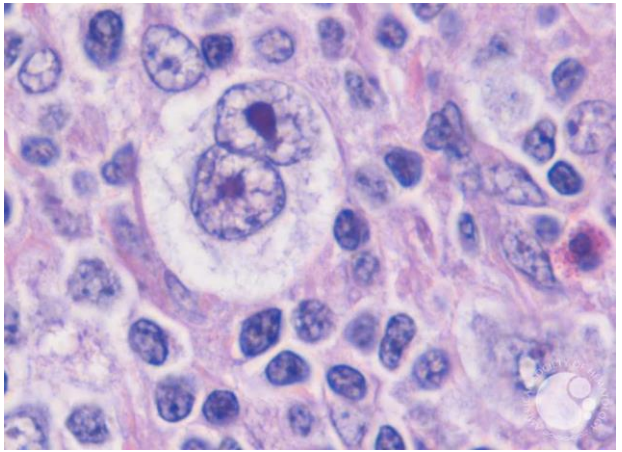
American Cancer Society, 2025



Harrison's Principles of Internal Medicine

Hodgkin's Lymphoma

- Characterized by abnormal cells known as Reed-Sternberg cells
- Named in 1832 by physician who discovered cancer of the lymph nodes, Dr. Thomas Hodgkin
- One of the most curable forms of cancer
- Common in children and teens
- All other lymphomas are non-Hodgkin's lymphoma



Reed Sternberg Cell

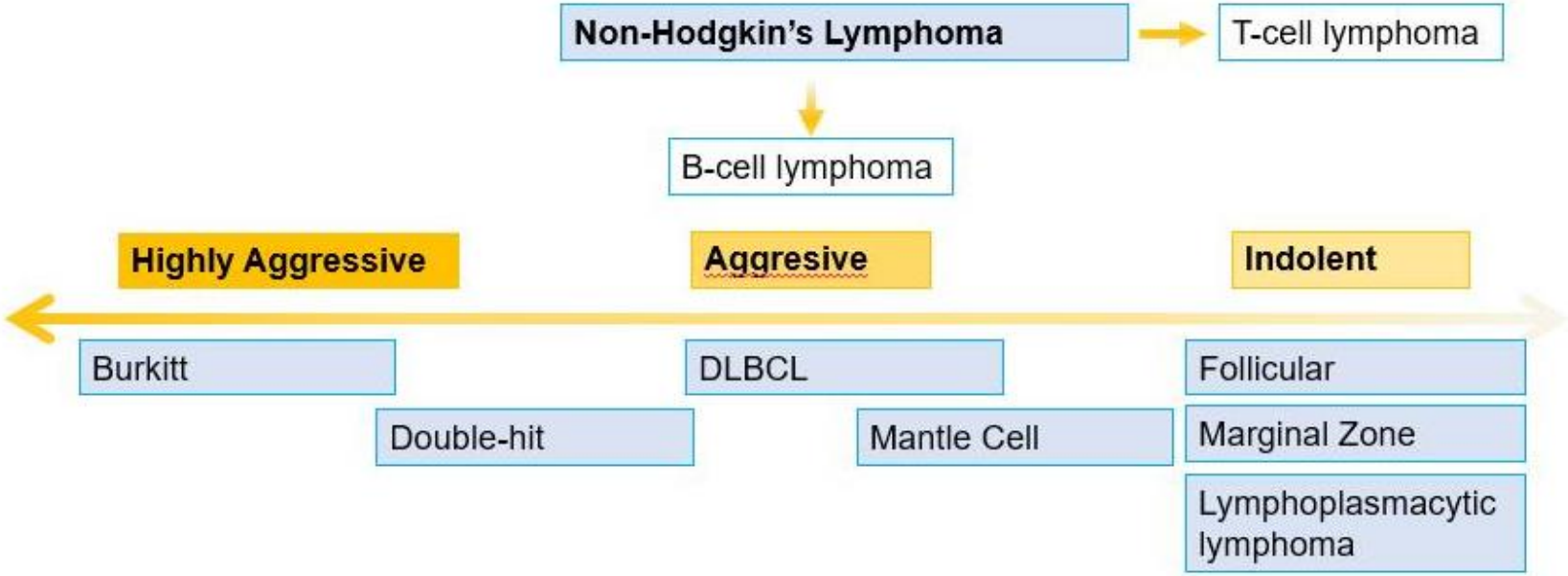
Trivia

Which star of the 2016 World Series winning Chicago Cubs team was successfully cured of Hodgkin's lymphoma as a teenager?

John J. Kim Chicago Tribune

1. Addison Russell
2. Jayson Hayward
3. Anthony Rizzo
4. David Ross

Categorization of Lymphoma



Signs and Symptoms of Lymphoma

- Enlarged lymph nodes (especially in the neck, underarm, groin area)
- Fever
- Weight loss
- Fatigue
- Frequent infections
- Abdominal fullness, feeling full after eating
- Common "B" symptoms
  - Drenching night sweats
  - Unexplained weight loss (>10% of body weight in 6 months)
  - Fevers

You are working at a PCP office. Your patient, Anna is a 48 year old female with a PMH of obesity and she presents for an annual visit. She complains of painless swollen lymph nodes in her neck. She says the lymph nodes have been there about a month since she had a cold. She has a slight fever to 99.9 but the remainder of vital signs are stable. Her throat is red and erythematous, and she has two palpable submandibular lymph nodes. When she was weighed by the medical assistant, she was elated she had lost 20 lbs in the past month! She mentions how much of a pain early menopause is because she has these horrible night sweats.

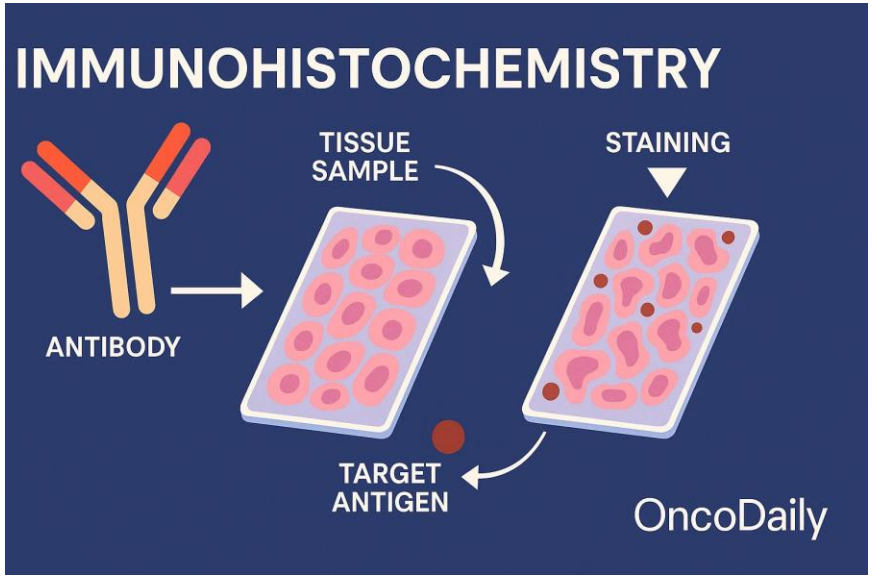
Anna's Results

Anna's CT scan reads "diffuse bulky lymphadenopathy involving the cervical, supraclavicular, and submandibular lymph nodes." Her serum LDH is 905. You are asked by the provider to provide education to Anna on which diagnostic test?

1. IR guided excisional lymph node biopsy
2. Bone Marrow Biopsy
3. Ultrasound of Neck

Diagnosing Lymphoma

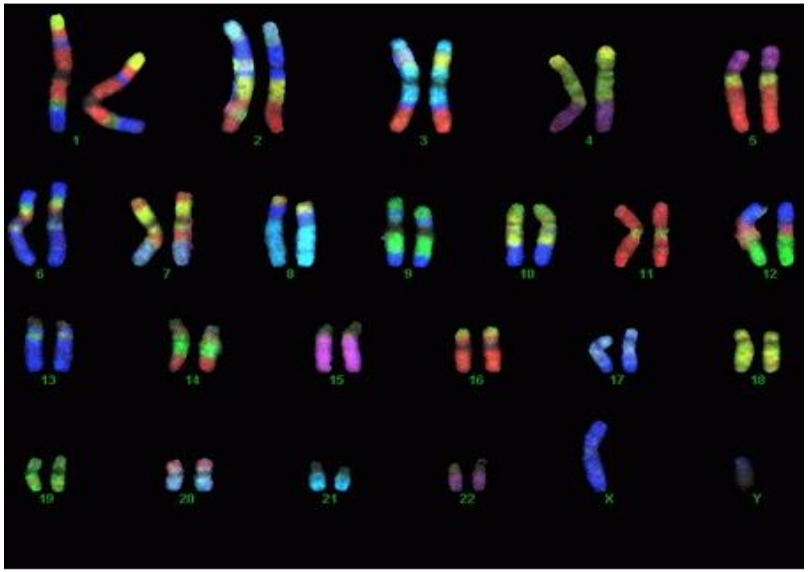
- Biopsy= Gold Standard
  - Excisional or Incisional is preferred
  - Send for flow cytometry, cytogenetics (FISH, IHC panel)
- Whole body PET scan
  - Uses radioactively tagged glucose (sugar) to highlight areas of high cell turnover (e.g. cancer, infection, trauma, inflammation)
- or CT chest abdomen/pelvis w/ contrast!
- May need
  - Bone marrow biopsy (especially if cytopenia's)
  - Lumbar Puncture



OncoDaily

Antibodies are applied to a tissue sample that only bind to a specific antigen

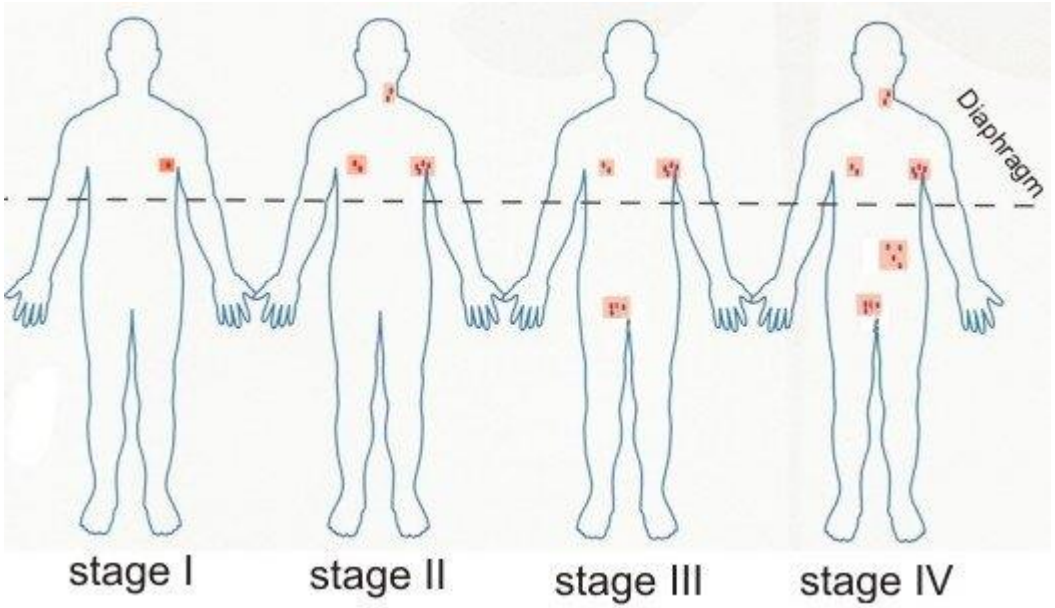
FISH



Emroy Winship Cancer Institute

DNA from cancer is exposed to fluorescently labeled DNA probes which bind to specific DNA sequences

Staging Lymphoma



Source: [Staging Lymphomas]

Staging Anna's Lymphoma

PET CT: Hypermetabolic
Lymphadenopathy involving
the bilateral neck, mediastinum,
bilateral hilia, upper abdomen,
retroperitoneum

Pathology from excisional LN biopsy:
Consistent with DLBCL

What stage is Anna's Lymphoma?

1.Stage One

2. Stage Two

3. Stage Three

4. Stage Four

Treatment Options

- Chemotherapy
- Radiation Therapy
- Antibody Therapy
- Immunotherapy
- Antibodies attached to chemotherapy
- Targeted Therapies: Therapies to block key cancer pathways
- Stem Cell Transplant
    - Autologous: From your own cells
    - Allogeneic: Replacing your immune system with someone else's

How do we decide which treatment?

- Sub-type of lymphoma
- Stage of lymphoma
- Site of lymphoma involvement (CNS involvement – needs additional chemo)
- Age and other health problems (Special drug toxicities)
- Convenience and Logistics
- New: use of genetic markers

Chemotherapy

- Medications that kill rapidly dividing cells
- Take advantage of the fact that lymphoma cells divide faster than normal cells
- Often part of curative treatment in initial treatment of lymphoma
- Side effects result from damage to normal cells that are dividing
  - GI Tract- Nausea, Vomiting, Diarrhea
  - Hair Loss
  - Blood System- cytopenia's-immunocompromised
- Common regimens
  - CHOP (Cyclophosphamide, doxorubicin, vincristine, prednisone)
  - ICE (ifosfamide, carboplatin, etoposide) ± rituximab)

NCCN Guidelines= Your New BFF

SUGGESTED TREATMENT REGIMENS[a,b]

FIRST-LINE THERAPY			
Stage I–II (excluding stage II with extensive mesenteric disease)	**Stage II (with extensive mesenteric disease) or Stage III–IV**	**Patients with Poor Left Ventricular Function[e,f,g] (all stages)**	**Very Frail Patients and Patients >80 Years of Age with Comorbidities[f,g] (all stages)**
• RCHOP (rituximab,[c] cyclophosphamide, doxorubicin, vincristine, prednisone) • Pola-R-CHP (polatuzumab vedotin-piiq, rituximab, cyclophosphamide, doxorubicin, prednisone) (smIPI >1)[d] (category 1)	**Preferred regimens** • RCHOP (rituximab,[c] cyclophosphamide, doxorubicin, vincristine, prednisone) (category 1) • Pola-R-CHP (polatuzumab vedotin-piiq, rituximab, cyclophosphamide, doxorubicin, prednisone) (IPI ≥2)[d] (category 1) **Other recommended regimens** • Dose-adjusted EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin) + rituximab	**Other recommended regimens (in alphabetical order by category)** • DA-EPOCH[h] (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin) + rituximab • RCDOP (rituximab, cyclophosphamide, liposomal doxorubicin, vincristine, prednisone) • RCEOP (rituximab, cyclophosphamide, etoposide, vincristine, prednisone) • RGCVP (rituximab, gemcitabine, cyclophosphamide, vincristine, prednisone) • RCEPP (rituximab, cyclophosphamide, etoposide, prednisone, procarbazine) (category 2B)	**Other recommended regimens (in alphabetical order by category)** • RCDOP • R-mini-CHOP • RGCVP • RCEPP (category 2B)

Anna's Treatment

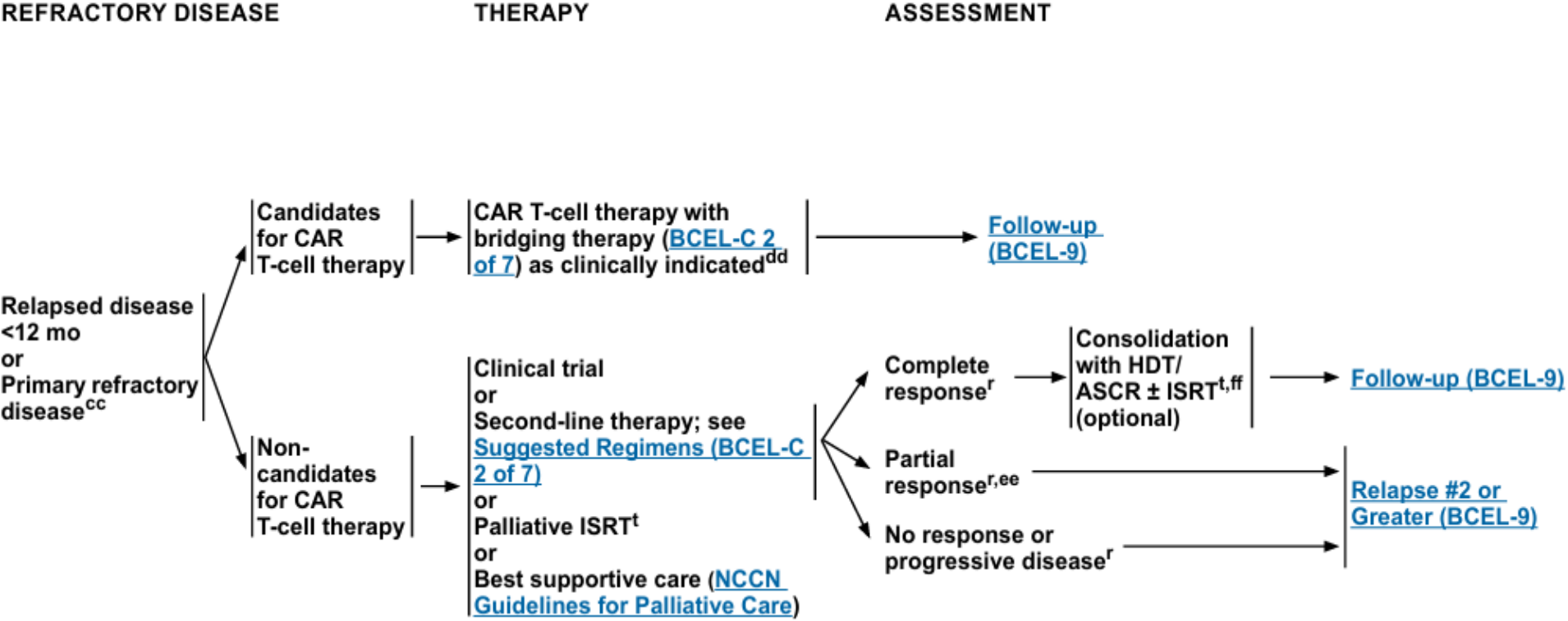
- Anna's oncologist chooses to give her R-CHOP
  - (Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, Prednisone)
- Per NCCN guidelines, restage with a PET/CT after 2-4 cycles of first line therapy
  - Lugano Response Criteria= Complete Response, Partial Response, No response, Progressive Disease
- If complete or partial response= complete 6 cycles
- If no response or progressive disease, treat w/ second line therapy

Anna's Treatment

Anna receives 6 cycles of R-CHOP. She does well for five months and remains in remission. Unfortunately, she develops new supraclavicular lymphadenopathy and fevers and CT w/ contrast shows diffuse lymphadenopathy consistent with relapsed disease. She is crying to you in the exam room that she can’t take anymore chemotherapy. You anticipate:

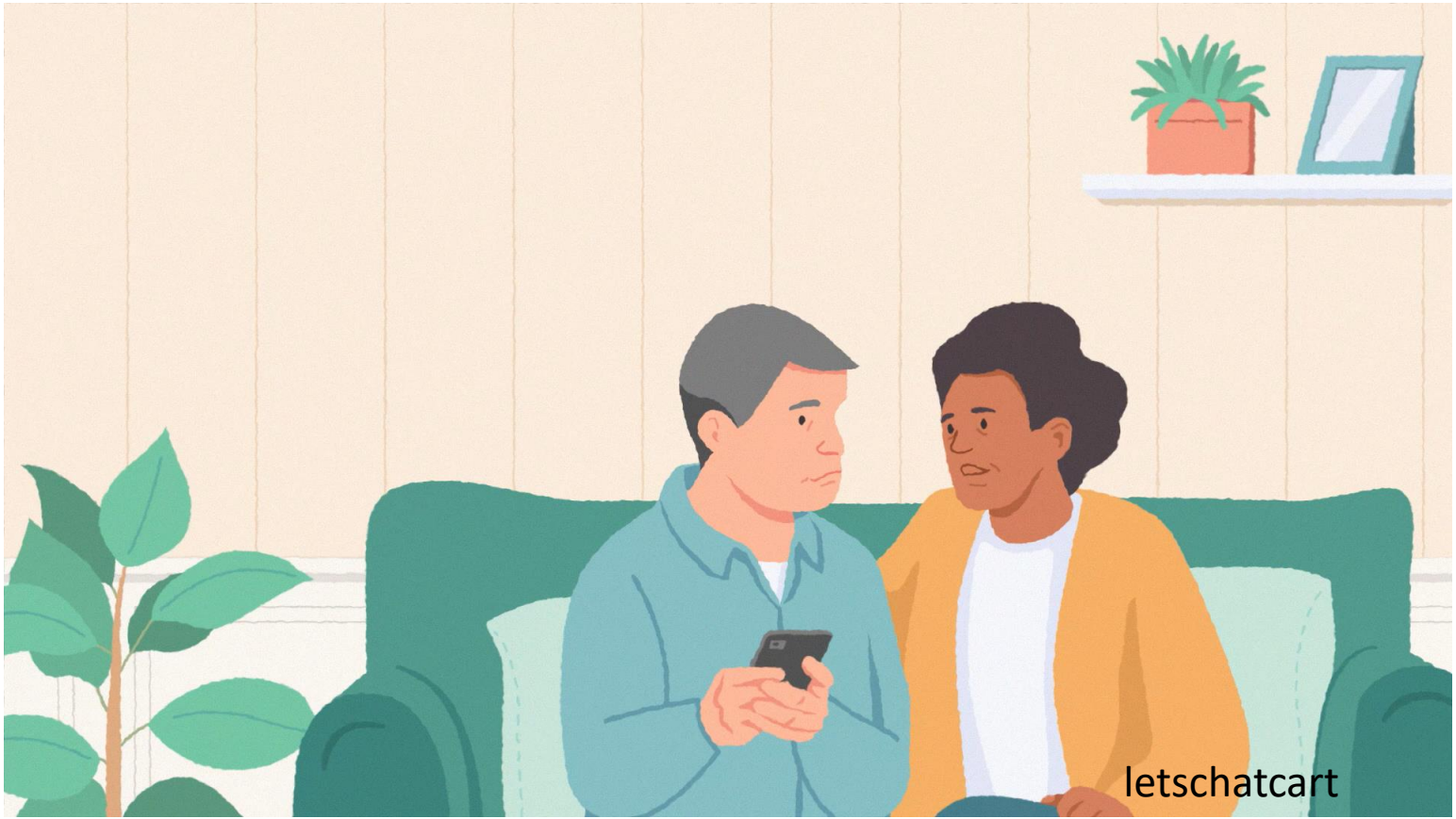
1. More chemotherapy with R-ICE
2. Radiation to lymph nodes
3. Referral to LGH TCT team for CART cell therapy
4. Clinical Trial

NCCN Guidelines Version 2.2025
Diffuse Large B-Cell Lymphoma



CART cell therapy

- Collect blood from the patient and separate out the T cells
- T Cells are sent to one of the treatment manufacturer's laboratories
- T cells are genetically engineered to produce special proteins on their surfaces called chimeric antigen receptors, or CARS
    - CARS help the T cells latch onto specific proteins on cancer cells (known as antigens)
- T cells w/ CARS are grown or expanded until there are millions of them
- Genetically modified T cells are shipped by manufacturer back to the hospital and are infused back into the patient

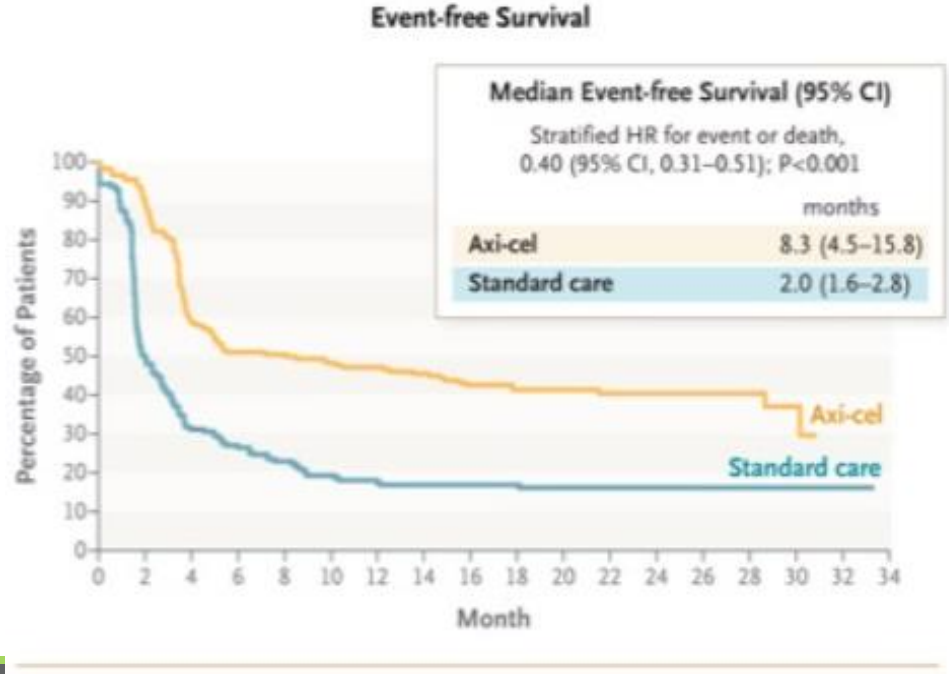

letschatcart

CART Cell Therapy

- Entire process from T cell collection to infusion back to patient takes 3-5 weeks
  - Need to consider bridging therapy so disease doesn't progress
    - GemOx + Rituximab, Polatuzumab
- Patients receive lymphodepleting chemotherapy ~5 days prior to T cells are reinfused
  - Fludarabine + Cytoxan (outpatient)
- Serious Side Effects- Overactivation of Immune System
  - CRS treated with tocilizumab- IL 6 blocker
  - ICANS treated with steroids

CART Results

- Zuma-7 trial compared CART as second line therapy for relapsed NHL vs standard care



Long Term Care and Follow up

- Per NCCN Guidelines, history and physical and labs every 3-6 months for 5 years
- CT A/P every 6 months for 2 years then only clinically as indicated
- Survivorship Referral!
  - Individualized care plans- dental, ophthalmology, primary care exams, echocardiogram due to anthracycline exposure, etc

Your amazing work as an RN paid off!

- Anna just had a CT chest, abdomen, pelvis with contrast 2 years after receiving CART cell therapy and she remains in remission! No new lymphadenopathy

  CART was approved in 2017, so don't have long term data

  *Patients have developed secondary malignancies from CART cell therapy *

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