LYMPHOMA CANADA

EXPERT SPEAKERS HOPE
NATIONAL NETWORKING
AID CONFERENCE FORUM
ON LYMPHOMA SUPPORT
CAREGIVERS EDUCATION
SEPTEMBER 29 - 30, 2017
SURVIVORS TORONTO, ON
THERAPIES SIDE EFFECTS

Lymphoma: The Basics

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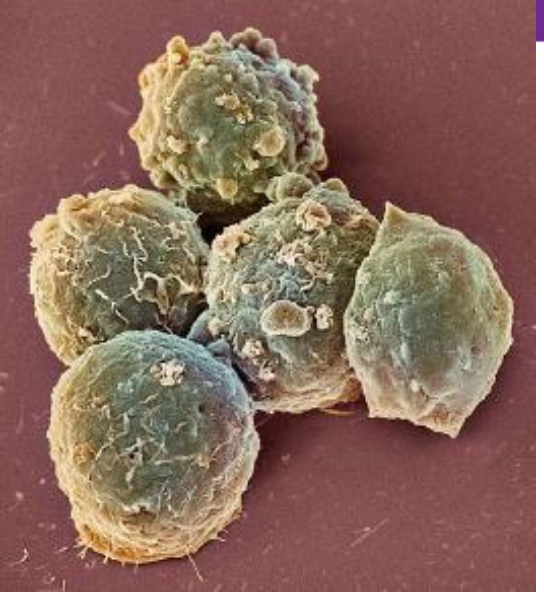
Objectives

- What is lymphoma?
- How common is it?
- Why does it occur?
- How do you diagnose it?
- How do you manage it?
- How do you follow patients after treatment?



What is Lymphoma?

- A cancer of cells in the lymphocyte lineage
  - Cancer: uncontrolled growth, invasion, spread
  - Lymphocyte: a WBC, important in the immune system
- Lymphoma is not a single disease
  - Subtypes behave and respond differently

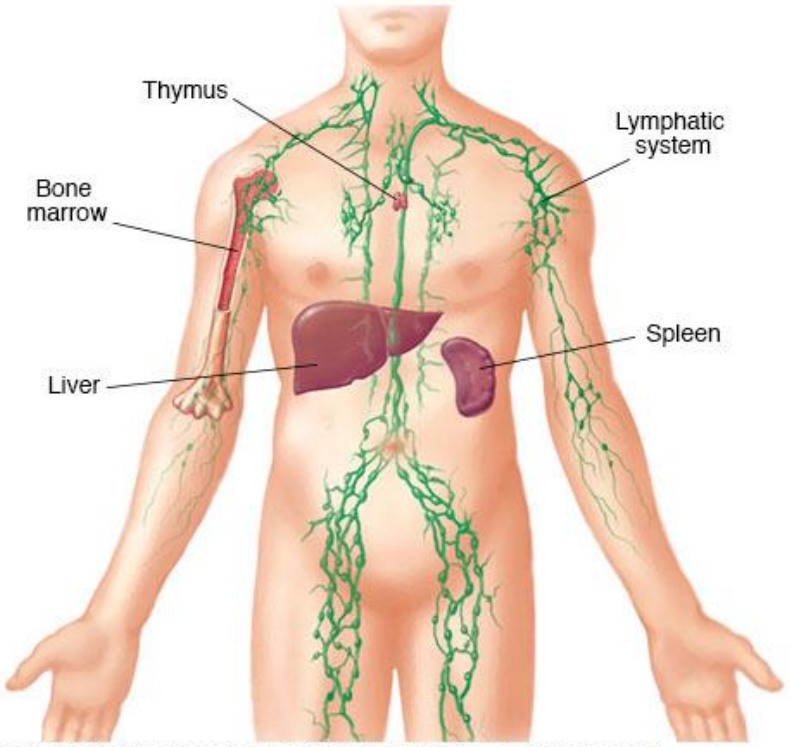
Lymphocytes

- B-cells develop in the bone marrow and influence the immune system by helping cells recognize infection.

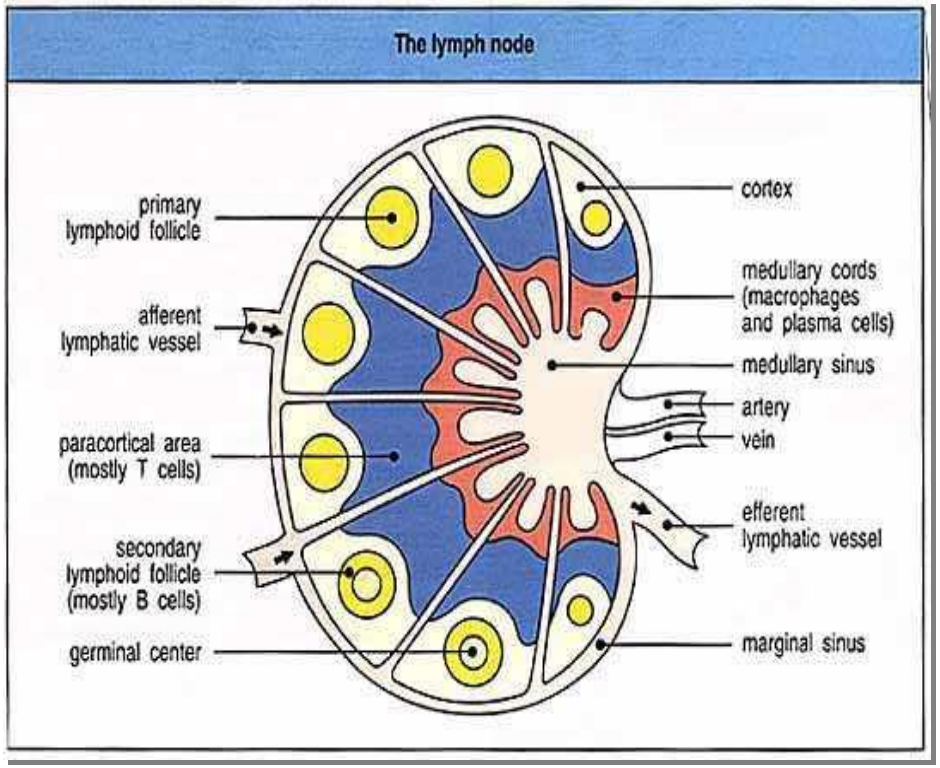
- T-cells develop and mature in the thymus gland.
  Killer T-cells destroy viruses and cancers.
  Helper T-cells orchestrate an immune response.

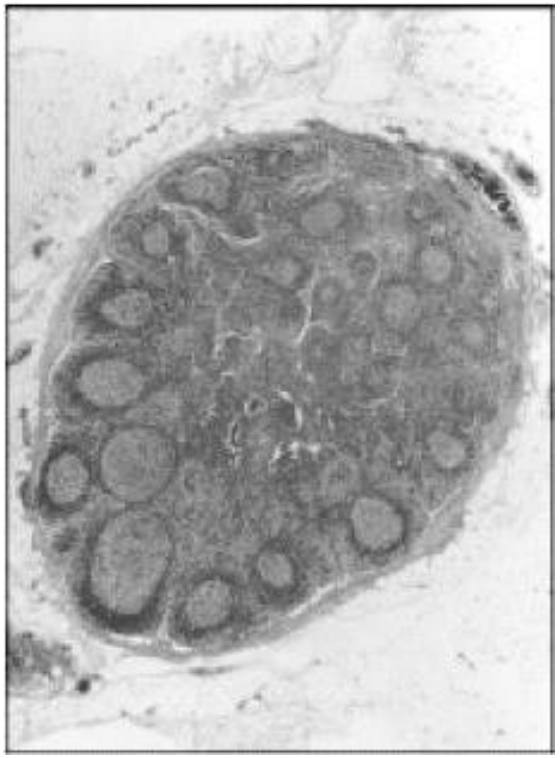
- NK (natural killer) cells destroy viruses and cancers.

Function of the Lymph System



Lymph Node


The lymph node
primary lymphoid follicle
afferent lymphatic vessel
paracortical area (mostly T cells)
secondary lymphoid follicle (mostly B cells)
germinal center
cortex
medullary cords (macrophages and plasma cells)
medullary sinus
artery
vein
efferent lymphatic vessel
marginal sinus



How common is it? In 2017:

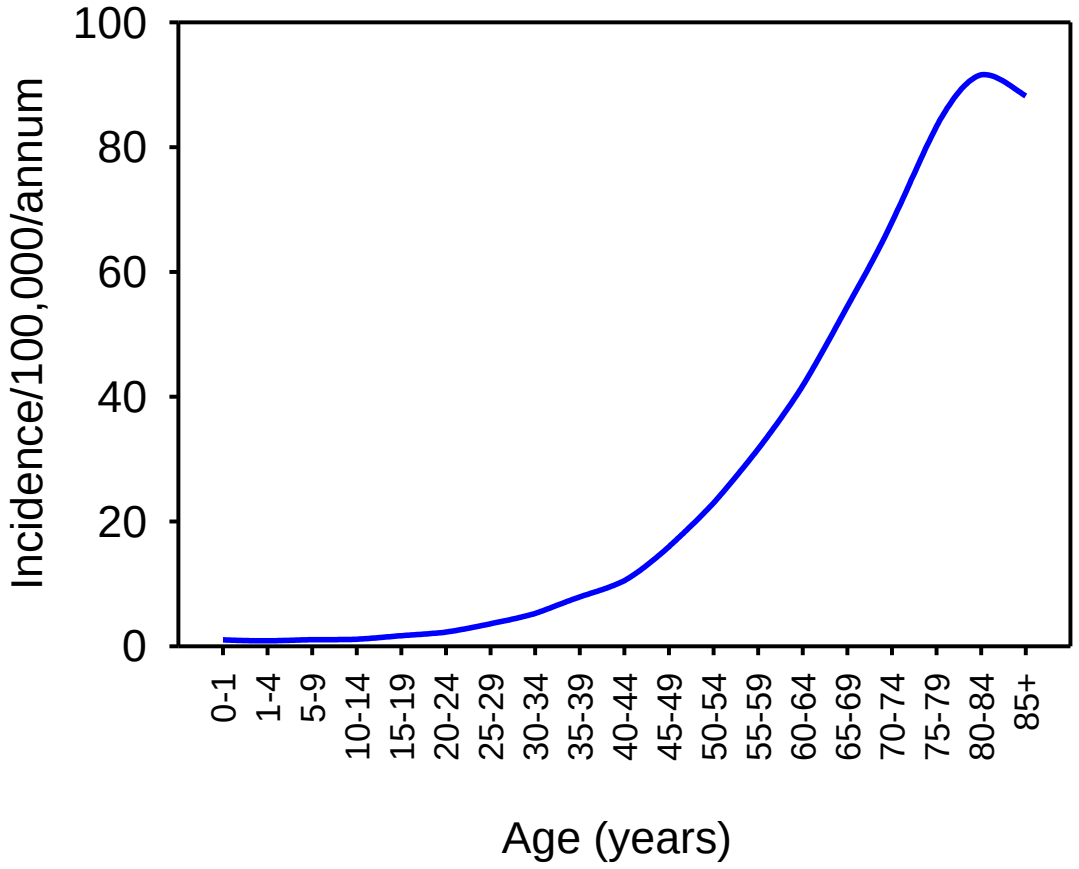
Lymphoma Types

Hodgkin
- 1,000 new cases/yr
- Relative 5-year survival 85%
- Leading cancer age 15-29

Non-Hodgkin
- 8,300 new cases/yr
- Relative 5-year survival 66% but varies greatly by subtype

Chronic lymphocytic leukemia
- 2,200 new cases/yr
- 7-10 year survival for most

Increasing age is a risk factor for NHL



Why does it occur?

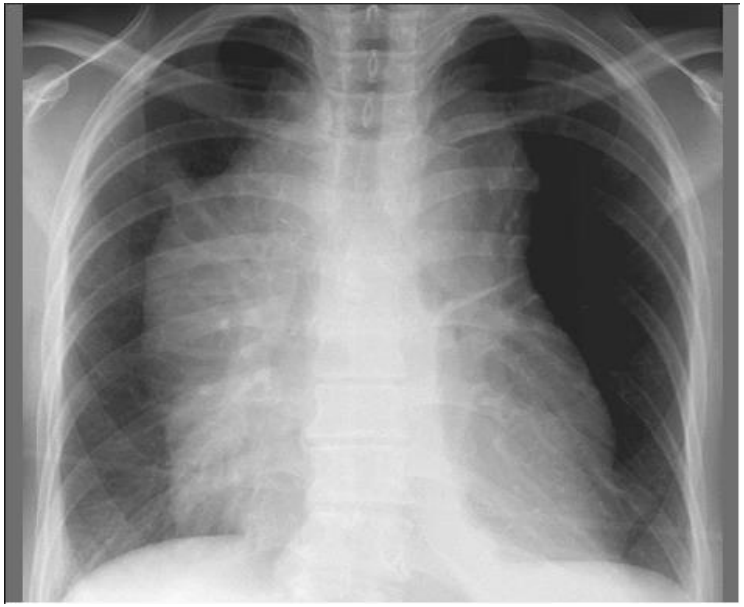
- Environmental:
  - Chemicals: bioactive solvents, pesticides
- Viruses
  - HTLV-1, EBV, HCV, HHV-8, HIV
- Dysfunction of the Immune System
  - Immunodeficiency (congenital, HIV, Organ Tx)
  - Chronic stimulation of damaged system
    - Chronic autoimmune disease
      - RA, SLE, Sjogren's, Celiac D, thyroiditis
    - Infections
      - Helicobacter Pylori chronic gastritis

Clinical Presentation of Lymphoma

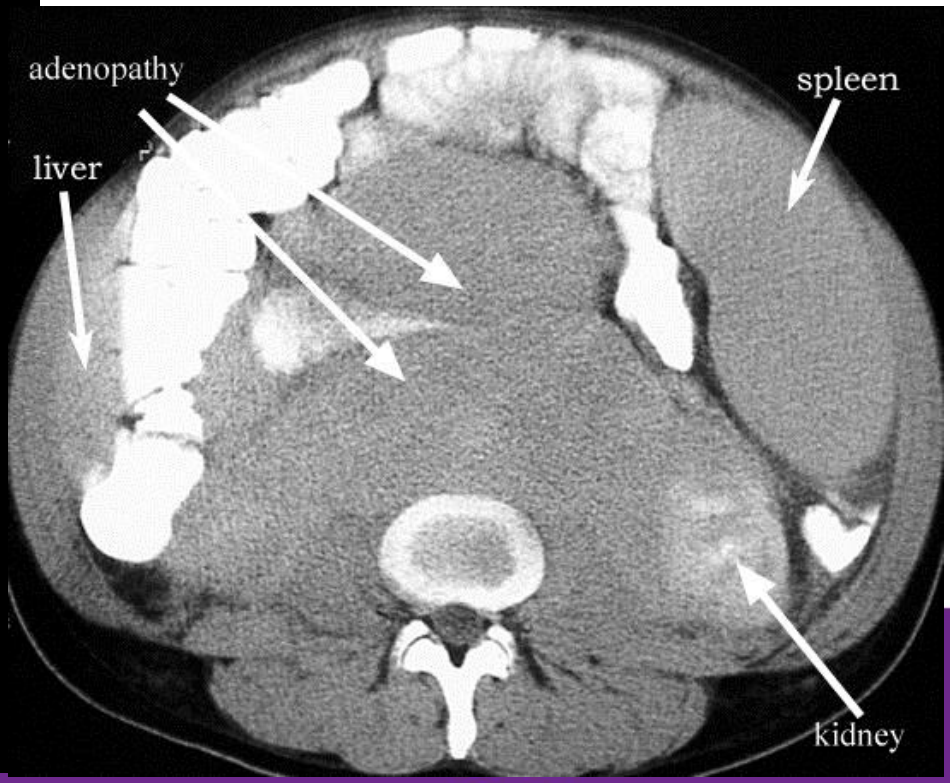
- **Lumps:**
  - Lymph nodes: neck, axilla, groin, abdominal mass
  - Organs: skin, thyroid, testis, liver, spleen
- **Organ dysfunction or discomfort**
  - Stomach, lung, liver, brain
  - Bone marrow (cytopenias): infection, bleeding, fatigue
- **Obstruction of tubular organ or vessel**
  - Bronchus: cough, shortness of breath (SOB)
  - Superior Vena Cava: face swelling, SOB, headache
  - Intestine: pain, vomiting, constipation, bleeding
  - Ureter: uremia (n/v, malaise, confusion, dyspnea)
- **"B" Symptoms: fever, night sweats, weight loss** (pruritus)

Clinical Presentation of Lymphoma

Clinical Presentation of Lymphoma



Clinical Presentation of Lymphoma



Current Lymphoma Classification WHO – 2016 Revision

There are over 60 types of lymphoma.

Hodgkin lymphoma

- Classical Hodgkin lymphomas (4)
- Nodular lymphocyte predominant Hodgkin lymphoma (1)

Mature B-cell neoplasms (41 types)

Mature T-cell & NK-cell neoplasms (27 types)

Common Types of Lymphoma

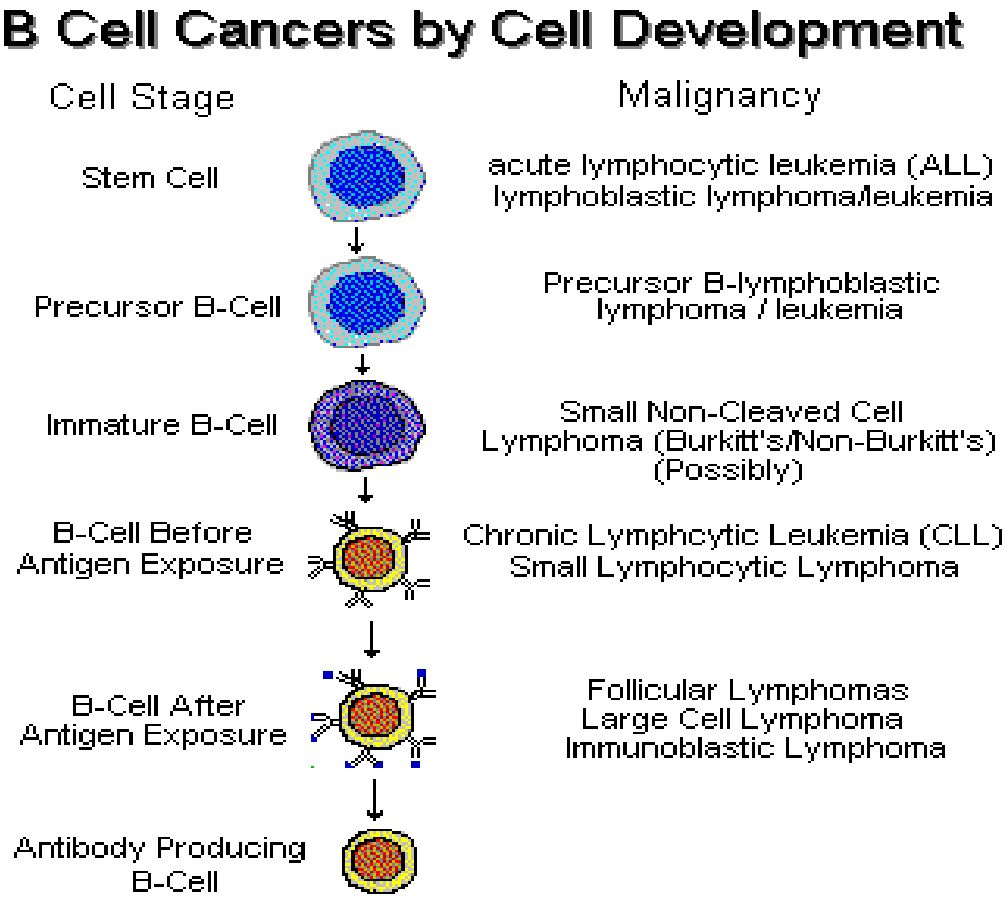
B-Cell Lymphomas

- ***Indolent***
  - **Follicular**
  - **Small Lymphocytic /CLL**
  - **Marginal Zone**
    - **MALT or Nodal**
  - **Lymphoplasmacytic**
- ***Aggressive***
  - **Diffuse Large B-Cell (DLBCL)**
  - **Hodgkin**
  - **Burkitt (BL)**
  - **Intermediate bet^{w} HL/DLBCL**
  - **Mantle Cell**
  - **Post-transplant Lymphoproliferative Disorder**

T-Cell Lymphomas

- ***Indolent***
  - **Mycosis Fungoides & Sezary Syndrome-CTCL**
  - **1^{o} Cutaneous CD30+ ALCL**
  - **Lymphomatoid Papulosis**
- ***Aggressive***
  - **Peripheral T-cell: NOS**
  - **Anaplastic Large cell**
  - **Angioimmunoblastic**
  - **Nasal NK/T cell**
  - **Enteropathy-type T-cell**
  - **γδ Hepatosplenic T-cell**
  - **Adult T-cell Leuk/Lymphoma**
  - **Precursor T-Lymphoblastic**

The different lymphomas originate at different levels of lymphocyte maturation.



Distinguishing lymphomas by clinical behaviour

Indolent NHL or CLL

- Slow growth
- Often asymptomatic
- Long natural history possible

- Incurable with standard therapy

Aggressive NHL or HL

- Rapid growth
- Often symptomatic
- Fatal in months (if untreated)

- Potential for cure with standard therapy

Approach to Lymphoma Management

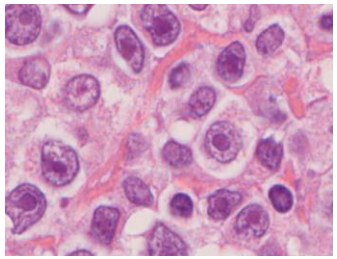
- **Establish Diagnosis**
  - Adequate tissue biopsy
  - Pathology review: IHC, Flow, Genetics
- **Determine Stage**
  - History & physical exam (B sx, ECOG, Age)
  - Blood tests: CBC, LDH, creatinine, LFTs
  - Imaging: CT scan Chest/Abdomen/Pelvis
  - Bone Marrow Asp/Bx
- **Develop Treatment Plan**
  - multidisciplinary input, standard/experimental options
- **Ensure Appropriate Follow-Up**
  - early detection/management of relapse or toxicities

Lymphoma Diagnosis

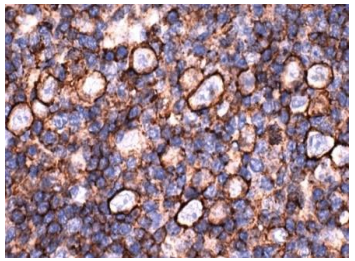
- Pathological diagnosis requires:
  - morphology (architecture)
  - IHC stains
  - Flow Cytometry
  - Genetics (FISH)
- Therefore,
  - ***Fine needle biopsy is NOT good enough***
  - ***Incisional or excisional surgical biopsy sent for lymphoma protocol is essential***
    - CT guided ***CORE*** needle biopsy may be adequate

Lymphoma Classification

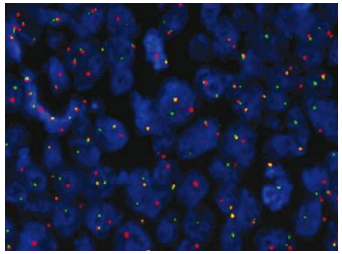
- Morphology



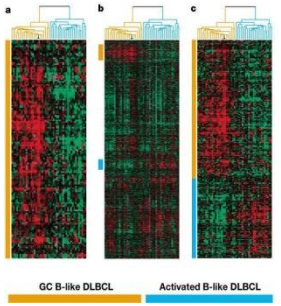
- Immunohistochemistry

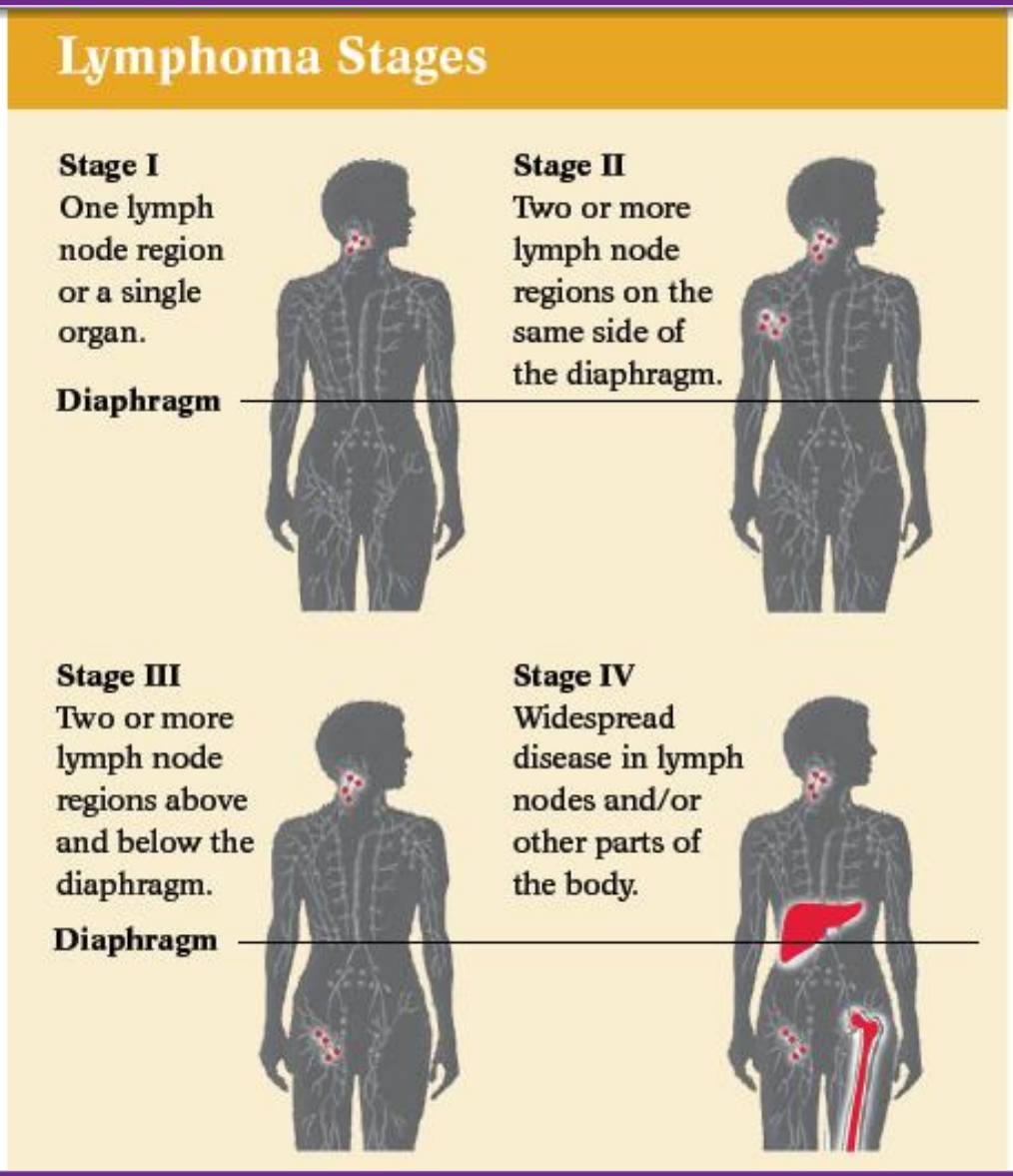


- Cytogenetics



- (gene expression profiling)



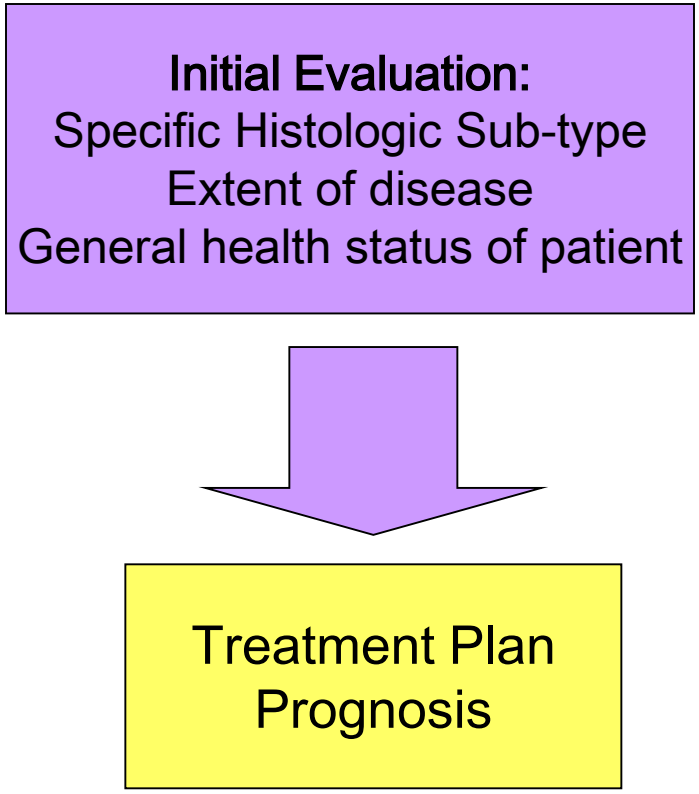


- **"A"** means that you have no “B” symptoms
- **"B"** reported fever, night sweats, & weight loss = ‘B’ symptoms
- **"E"** parts of your body other than the lymph nodes are involved

CLL Staging – Rai Staging System

Rai stage	Risk	lymphocytes	RBC	Platelets	Lymph nodes enlarged?	Spleen enlarged?
0	low	high	normal	normal	no	no
1	intermediate	high	normal	normal	yes	no
2	intermediate	high	normal	normal	maybe	yes
3	high	high	low	normal	maybe	maybe
4	high	high	low	low	maybe	maybe

With all of the information we are now able to formulate a treatment plan and discuss prognosis.



Goals of treatment

- Cure
- Prolongation of life
- Prolongation of remission
- Control of symptoms (palliation)

➢ **Typically, the greater the goal, the greater the potential toxicity**

Treatment plan

- Partnership between patient and health care team
- Role of the health care providers:
  - Identify potential treatment goals
  - Discuss treatment options
  - Inform about advantages/disadvantages of options
- Role of the patient
  - State priorities regarding risk vs benefit
  - Make the ultimate decision

Initial Lymphoma Treatment

Lymphoma	Treatment
Diffuse Large B-Cell	Rituximab+CHOP +/- IFRT
Follicular	IFRT or WW vs BendaR→R x2yr
Hodgkin's Disease	ABVD +/- IFRT
Marginal Zone, nodal	BendaR→R x2yr
Gastric MALT	Hp PAC vs IFRT
Mantle Cell	RChemo-AutoSCT or BR then Rx2yr
Peripheral T-Cell, NOS	CHOP→AutoSCT
Anaplastic Large T-cell	CHOP
Precursor T-Lymphoblastic	ALL-like regimen vs AlloSCT
Mycosis Fungoides	Topicals, Electron Beam
Small Lymphocytic/CLL	FCR vs BR vs CBL-O vs Ibrutinib
Burkitt	R-CODOX-M / IVAC
PTLD	Rx4→RCHOP, ↓ immune suppress^{n}
HIV Associated Lymphoma	R-CHOP + HAART + ABx

How to Estimate Lymphoma Prognosis?

- Diagnostic subtype
- Stage: limited vs advanced
- Prognostic Index Scores (Age, Stage, LDH, Hb, & others)
- Biomarkers
  - DLBCL: p53, C-MYC, BCL-2, GCB vs non-GCB COO
  - MCL: Ki-67
  - ALCL: ALK-1
- Treatment Administered
  - Dictated by other health issues, esp dysfunction of:
    - Heart, Lung, Liver, Kidney, Brain

Components of Follow-Up

- Detection of cancer relapse/progression
- Detection/support for treatment complications
- Early detection of new primary cancers
- Monitoring for the long-term and late physical and psychological effects.