

# Lymphomas: Current Therapy Approaches

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## Questions to Answer Prior to Treatment

- Is the diagnosis conclusive?
- What is the lymphoma stage/prognostic score?
- Is the normal body in good health?
  - Physical exam, lab tests, heart/lung function
- Are there clinical trials available?
- Is treatment indicated?
  - Indolent lymphomas can sometimes be monitored
- What is the aim of the treatment?
  - Is the treatment potentially curative or is it designed to control the lymphoma?

## Treatment Team

- Lymphoma therapies may be complex
- The patient and the doctor are in charge of the treatment plan
- Make sure to understand the plan for each treatment
- Follow the plan carefully and ask questions
- Understand the aim of the treatment

## Fertility Preservation

- Remember, chemotherapy is not a form of birth control
- For men, sperm bank
- For women, investigate options with a fertility specialist, if possible/relevant before treatment
- No natural pregnancies during therapy and for 2 years post-therapy
- Natural pregnancies more than two years post-chemotherapy are expected to be “normal”

## Chemotherapy

- Drugs which kill or control lymphoma cells.
- Medications which are given by vein or by mouth.
- Usually administered as a “cycle”: once a month; once a week for two weeks and then repeated monthly; etc
- Generally, combinations of drugs are used to more quickly shrink lymphoma and, in particular, to cure lymphoma.

## Access Devices

- Treatment in the vein can be administered by:
  - Vein in the hand or arm
  - Mediport: a device under the skin with a round “port” on the chest and a small tube into the neck
  - PICC line: a tube placed into the upper arm and used over many weeks/months
  - Central catheter: a tube placed on the chest and tunneled into the neck vein which can be used over many weeks/months

## Supportive Medications

- Anti-nausea
- Antacid-type meds
- Prophylactic antibiotics
- Allopurinol to prevent gout, kidney disease
- Growth factor support
  - Neupogen, daily shot
  - Neulasta, one shot per chemo cycle
- Transfusions: red cells and platelets
- Treatment calendar

## Antibodies

- Antibodies are proteins which attack lymphoma cells by their unique surface characteristics.
  - Rituximab, an antibody against CD-20
- As proteins, they may cause allergic reaction. They are generally administered by vein.
- Alone, they may not lower blood counts.
- Antibodies can be linked to radiation or to toxins or to chemotherapy.
  - Bexxar or Zevalin, two radioactive antibodies “RIT”
  - Ontak, antibody + toxin
  - SGN-35, an antibody + chemotherapy agent under investigation

## New Agents

- To be discussed by Dr Owen O'Connor
- Many of these medications attack a specific cell pathway and are called "targeted" agents

## Maintenance Therapy

- Once the lymphoma is in remission, it may be recommended that treatment be continued on an intermittent basis
- In B-cell lymphomas, this is often Rituximab every few months

## Radiation Therapy

- Radiation is generally administered daily for 10-20 treatments, Monday-Friday
- Radiation is often a supplement to chemotherapy
- The radiation “port” is the area radiated; the dose is expressed as centigrays
- Radiation side-effects are limited to the radiation port, and are dependent upon dose/schedule of the dose, how old you are when you get the radiation, how long ago it was administered etc

## Intrathecal Therapy

- Rarely, lymphoma cells may enter the fluid that bathes the brain/spinal cord
- This may happen in aggressive lymphomas
- Prevention of lymphoma in this “sanctuary site” is performed with IT therapy
- Medication is instilled into the fluid:
  - Lumbar puncture reaches the fluid (similar to an epidural in the low back)
  - The CSF is removed in small amount and the chemotherapy is instilled slowly
  - Treatment is generally done with each chemo cycle

## Transplantation Therapies

- Autologous: Cells from the self
- Allogeneic: Cells from a donor other than self
- Transplant therapy aims at cure.
- Transplant therapy is toxic, but the risks are deemed acceptable when the aim is cure and other options are less good.

## Autologous Transplant

- Eligible patients first receive treatment to shrink lymphoma
- Once the lymphoma is in remission, then “harvesting” is done
- Healthy cells are collected from the blood stream (using big IV needles or tubes) >> a specialized leukopheresis machine separates out the healthy cells and the rest of blood is returned to the patient

## Autologous Transplant, continued...

- Healthy cells are frozen/stored
- Eligible patients then receive the “preparative regimen” (chemotherapy +/- radiation)
- After this regimen is completed, the healthy cells are thawed and infused
- It takes about two weeks for the new blood cells to start working

## Allogeneic Transplant

- The donor source may be: sibling, matched unrelated, umbilical cord
- Eligible patients receive a “preparative regimen”
  - Full: high dose chemo/RT; Mini: only suppressing immunity
- Once the regimen is administered, the healthy donor cells are infused
- These cells may take 2-4 weeks to begin producing healthy cells
- Graft-versus-host disease is a major consideration with allotransplant; graft-versus-lymphoma is what we want to have.



## Treatment Monitoring

- During and after treatment, the result of therapy is monitored
- Physical exam, imaging, blood work
- Repeat biopsies may be indicated
- In aggressive lymphomas, Hodgkin lymphoma, and after allotransplantation, we say that after 5 years off treatment, a cure has been achieved
- In indolent lymphomas, late relapses may occur but remissions may often be more than 5 years
- Survivorship monitoring to maintain good health is important in all patients

Thanks!