The 5 W's of Autologous Transplant for Lymphoma

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Presenter Disclosure

- **Faculty:** Kristjan Paulson

- **Relationships with commercial interests:**
  - **Grants/Research Support:** None
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  - **Other: None**

Mitigating Potential Bias

- All conflicts relate to acute leukemia/allogeneic transplant and are not relevant to this topic

Objectives

1. List the three most common indications for autologous transplant (AutoSCT) in lymphoma
2. Describe the criteria for eligibility for AutoSCT
3. Describe the common complications following AutoSCT, and the management of these complications
4. Describe the follow-up plan for patients after AutoSCT in the Community Cancer Programs, and the resources available to help manage these patients

Terminology

- For all intents and purposes:
  - Stem cell transplant = bone marrow transplant
- Two types:
  - Autologous = donor is yourself
  - Allogeneic = donor is anybody else
- While both involve infusion of stem cells following chemotherapy, they are substantially different
  - Different indications
  - Different complications
  - Different follow-up plan
- While there is a role for allogeneic transplant in lymphoma, we'll focus exclusively on autologous stem cell transplant

5 W's of AutoSCT for Lymphoma

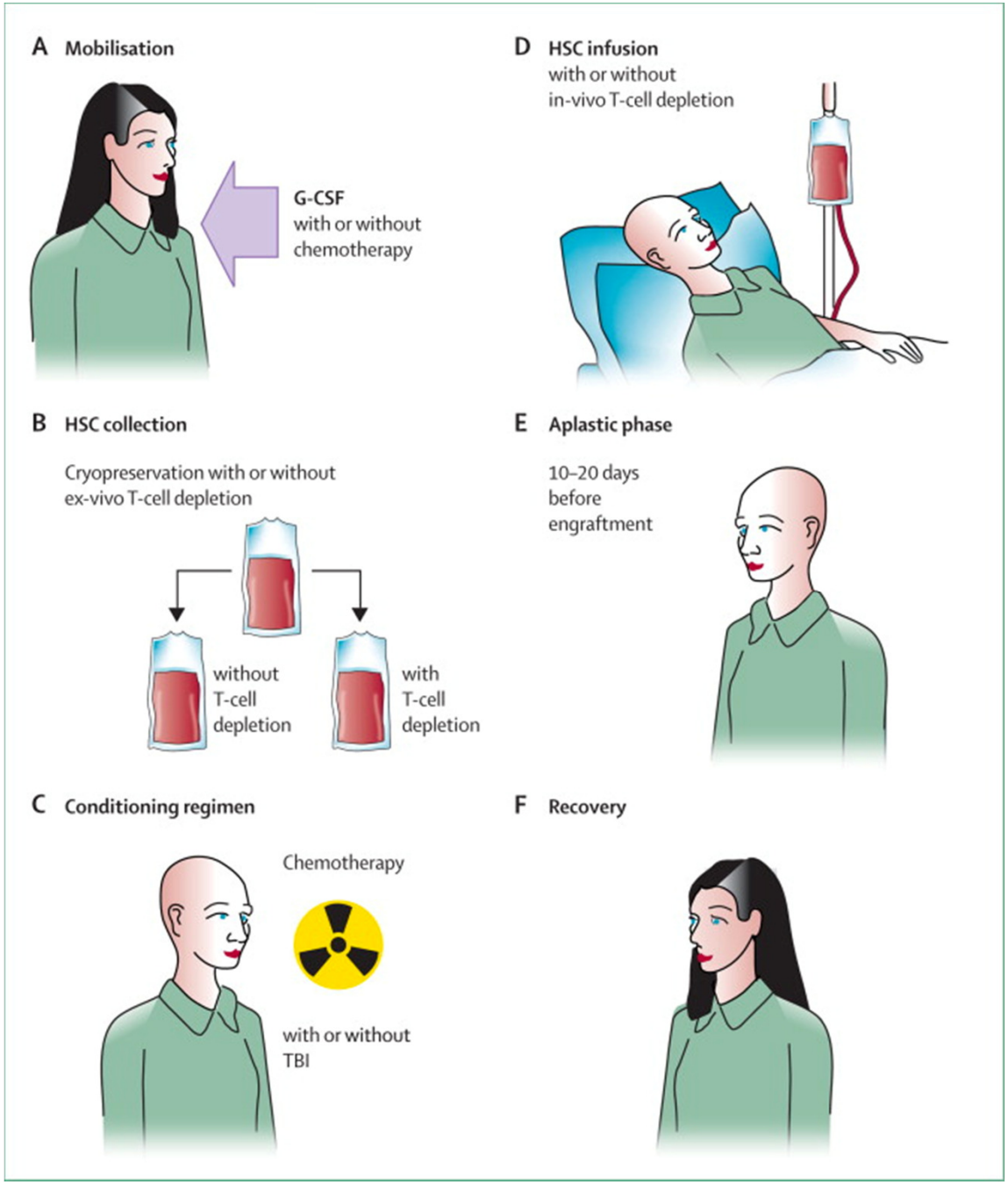
- Why: purpose of autologous transplant
- What: what is autologous transplant?
- Who: patient selection for transplant?
- When: timing for transplant
- Where: follow-up after transplant in the CCP

Why?

- How I explain this to patients:
  - Chemotherapy kills cancer cells
  - Higher doses of chemotherapy kill more cancer cells, but also have more side effects
  - Normally the goal is to deliver the largest dose of chemotherapy that doesn't result in too many side effects
  - Autologous stem cell transplant is a shortcut around one side effect of chemotherapy – low blood counts

What?

- Two step process:
  1. Stem cell collection:
     - Mobilize stem cells into peripheral blood using G-CSF
     - Collect these stem cells using apheresis, and cryopreserve them
  2. High dose chemotherapy
     - Admit the patient to hospital
     - Deliver high dose chemotherapy
     - Infuse stem cells
     - Monitor for complications, wait for count recovery
- Only goal of autologous stem cell transplant is the safe delivery of high dose chemotherapy
- Better name: high dose chemotherapy with stem cell rescue


A Mobilisation
G-CSF
with or without
chemotherapy
B HSC collection
Cryopreservation with or without
ex-vivo T-cell depletion
without
T-cell
depletion
with
T-cell
depletion
C Conditioning regimen
Chemotherapy
with or without
TBI
D HSC infusion
with or without
in-vivo T-cell depletion
E Aplastic phase
10–20 days
before
engraftment
F Recovery

Who?

- Critical prerequisites for transplant:
  1. High dose chemotherapy must be much more effective than standard dose chemotherapy
  2. The major side effects of the chemotherapy drugs most effect must be hematologic
  3. The patient must have good disease control
  4. The patient must be fit enough to tolerate:
     - The other side effects of high dose chemotherapy
     - The side effects of temporary pancytopenia

Disease Factors

- Primary indication – hematologic malignancies (lymphoma/multiple myeloma)
- In Canada:
  - 55% of all autologous transplants are done for multiple myeloma
  - *29% for Non-Hodgkin Lymphoma*
  - *9% for Hodgkin Lymphoma*
  - 11% - all other diseases

In General…

- High dose chemotherapy always adds risk and toxicity
- Patients must have a lymphoma that is associated with a high risk of relapse or recurrence
- If there is only a low risk of relapse/recurrence the relative benefit is small, and the risks are greater than the benefits

Three Scenarios:

Curative Intent:

1. Treatment of relapsed or refractory Diffuse Large-B Cell Lymphoma/Hodgkin Lymphoma (second line therapy)
2. Initial consolidation of selected patients with high risk disease (T-cell lymphomas, Mantle Cell lymphoma)

Prolong Remissions:

3. Multiply relapsed/high risk indolent lymphoma (Follicular Lymphoma)

Risks of Transplant

- Will have pancytopenia for 7-14 days:
  - Must be able to tolerate moderate anemia/thrombocytopenia
  - High risk of febrile neutropenia, and risk for infection
    - Cardiac stress, volume shift
- Chemotherapy drugs used have side effects other than hematologic
  - Need adequate cardiac, renal, hepatic function to tolerate transplant

Practically Speaking

- Age less than 70
- Good performance status
- Normal organ function
  - Liver function tests
  - Renal function testing
  - Normal cardiac function (MUGA/echocardiogram)
  - Normal lung function (pulmonary function testing)

When?

- Need good disease control coming into transplant
- Transplant does not work well as initial therapy for disease
  - Need recurrent cycles of standard dose chemotherapy
- Usually transplant is done following several cycles of standard dose chemotherapy, and in patients with at least a partial response
- If transplant is done in patients with refractory disease, benefits are substantially smaller

Where?

Where?

- Stem cell collection is done at CancerCare Manitoba (MacCharles site only)
- Patients are typically admitted to hospital at HSC for 3-4 weeks:
  - High dose chemotherapy (3-5 days)
  - Stem cell infusion (1 day)
  - Waiting for count recovery, symptom management, and monitoring for complications (2-3 weeks)

Where?

- Historically, patients were kept in Winnipeg for the first 100 days following transplant
- This is a burden on patients from rural Manitoba
- As of 2011 – we have encouraged rural patients to return home immediately after discharge for follow-up in the CCP
- We are available as a resource to you to help manage these patients, and have documents and guidelines to help
- SOP CLI021 (available at all CCP sites)

Job Aid **Post Autologous BMT Nursing Assessment Guideline**

This guideline will assist CCP physician and nurses to facilitate safe and consistent delivery of post transplant care to the BMT Patient. Documentation shall include a complete assessment *of the patient and documenting any changes in the patient's condition.*

Any questions or concerns call Tracy Robinson, CNS- BMT clinic @ 787-1864 or Kevin Dawe, Physician Assistant at 204-787-1855 or contact BMT physician via HSC paging at 787-2071 or appropriate CCP physician

1.	Schedule a first appointment with a nurse and doctor, if possible, within 48- 72 hours following discharge.
2.	Assess for patient problem ➢ The most common problems patients experience are nausea and dehydration
3.	Schedule appointments as needed (frequency of follow up will be based on assessment and patient report of any problems.) A usual follow up strategy would include: ➢ A nursing assessment one week after the initial appointment (approx. 1 week after discharge) ➢ An appointment with a physician and nurse one month from discharge
4.	Document date and time of visit include BMT Day (date of transplant plus days post transplant e.g., 20 days post transplant
5.	Assess weight at each visit and document changes ➢ Monitor weight loss and sudden weight gain.
6.	Complete Bloodwork and frequency of blood work should include: ➢ 2-3 days post discharge ➢ 1x the following week then ➢ 3 weeks later at time of physician assessment appointment- unless otherwise indicated by clinical status

7.	Bloodwork tests to be included: ➢ CBC, Chemistry (electrolytes, BUN, Creatinine ALT, AST, Alk Phos, GGT, LDH, Protein, Magnesium, Phosphate, Calcium Albumin)
8.	Review current medication ➢ Antiemetics ➢ Pain medications ➢ Antibiotic Prophylaxis medications- auto patients require ➢ (Pneumocystis jiroveci prophylaxis until Day +180 (Sulfamethoxazole/Trimethoprim or dapsone or pentamidine) ➢ Herpes Zoster prophylaxis till day 180 (valacyclovir 500 mg bid) ➢ Bisphosphonates if appropriate
9.	Patient Condition Assessment: ➢ Monitor for signs of infection ➢ Complete Vitals signs (including SaO2) at each visit ➢ Monitor Fevers, watch for bacterial, viral and fungal infections ➢ Is a vascular access device is Situ? Should it be removed? ➢ If chills post blood draw blood cultures to be drawn immediately – may be sign of blood stream infection/catheter related infection

Common Problems - GI

- Fatigue is universal
- Most patients will have some nausea / anorexia
  - Monitor volume status
  - If hypovolemic (postural blood pressure drop, other clinical signs of volume depletion) – be generous with IV fluids
  - Typically improves slowly with time – maximize anti-emetic regimen if needed
- Diarrhea can be a late toxicity of chemotherapy, but be vigilant in ruling out C.difficile

Common Problems - Infection

- By the time of discharge, would have had neutrophil recovery
- Lymphoid recovery takes longer (months/years)
- Risk of most types of infection only modestly higher than the general population
- Exceptions:
  - Line infections (review the need for the PICC line!)
  - Mucosal candidiasis (thrush)
  - PJP (should be on prophylaxis until 6 months out from transplant
  - HSV/VZV (prophylaxis…)

Common Problems - Laboratory

- Blood counts may not be normal but should be acceptable (ANC > 1, not needing RBC transfusions, platelets > 50 – call us if they are not)
- Monitor liver function tests/renal function tests – although these are rarely a problem
- Electrolyte replacement as required (rarely needed)

Common Problems - Disease

- Monitor for disease recurrence…
  - Unexplained constitutional symptoms
  - New aches/pains
  - New lymph nodes
- Start with basic bloodwork and imaging as necessary, but don't hesitate to contact us and we'd like to be involved

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