

ALLOGENEIC PRE-TRANSPLANT --- CLASS

Please sign in on clipboard.

Please silence cell phones and turn off
recording equipment.

Transition Nurses

Christine Alfonso, RN, BSN, BMTCN

Kristin Graff, RN, MSN

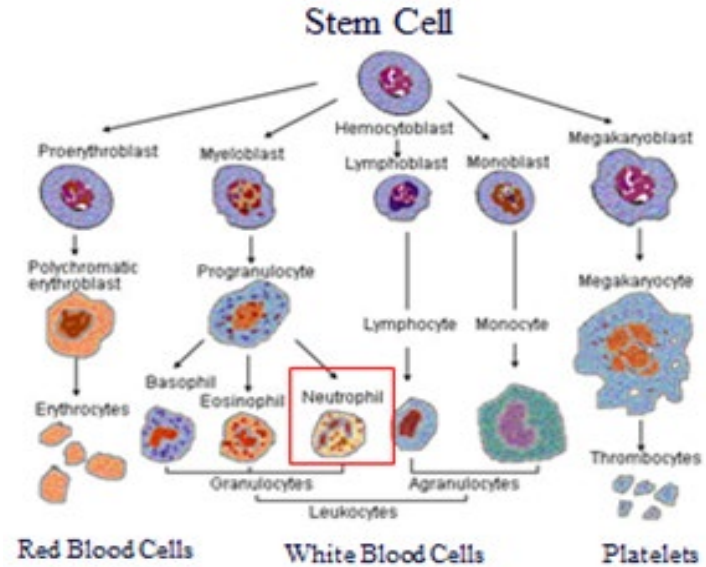
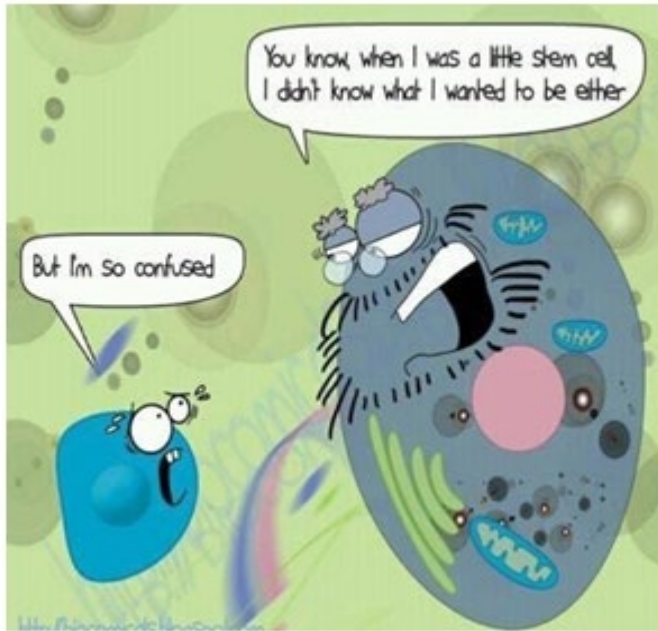
Melanie Sikes, RN, BSN

Arlene Zawatski, RN, BMTCN

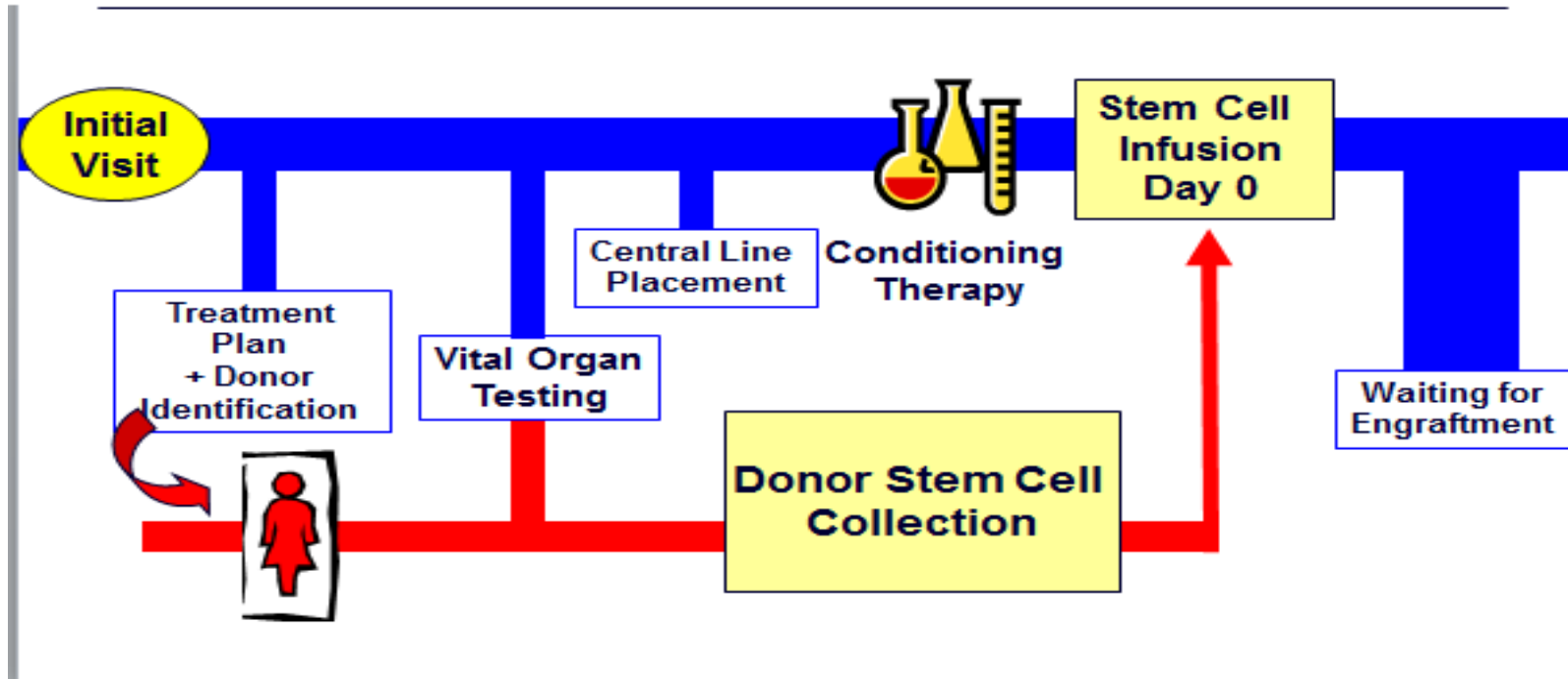
ALLOGENEIC (ALLO) STEM CELL TRANSPLANT

- ❑ Bone marrow and cancer cells are destroyed with high dose or “conditioning” chemotherapy
 - ❑ Chemotherapy, radiation therapy, and/or other medications
- ❑ Stem cell transplant occurs after conditioning chemotherapy is completed
 - ❑ Receive stem cells from someone else
 - ❑ Related donor
 - ❑ Unrelated donor
- ❑ Cells begin to grow or “engraft” and create new bone marrow in approximately 14 – 21 days

What is a Stem Cell?



ALLOGENEIC TRANSPLANT



CENTRAL LINE

A hollow, plastic tube placed in the chest and tunneled under the skin

- Inserted before admission
- Removed before returning home

Used for:

- Chemotherapy
- Infusion of stem cells
- Most blood samples
- IV fluids and IV medications



CENTRAL LINE FLUSHING

- After discharge, caregivers will be expected to flush all three lumens of the patient's central line on days that the patient does not come to clinic.
- The bedside nurse will demonstrate central line flushing throughout your hospital stay and there will be opportunities to practice line flushing
- Step by step written instructions will also be provided in the discharge education paperwork (green folder) provided to the patient by the Transition RNs
- Central line flushing will be reviewed with the caregiver and/or patient by the Transition RN before discharging from the hospital

CONDITIONING THERAPY

Conditioning therapy (chemotherapy) is given over 5 to 7 days depending on treatment plan

- Scheduled nausea medications given
 - Additional nausea medications available as needed
- Ice chips with Melphalan chemotherapy
 - Decreases severity of mouth sores
 - Hold ice chips in mouth and allow to melt
 - Use 5 minutes before start of infusion, during infusion, and for 15 minutes after the end of infusion
- Blood levels drawn with first Busulfan chemotherapy dose

Rest day(s)

TRANSPLANT DAY

Stem Cell infusion on Day “0”

- Pre-medications given to prevent reactions
- May receive IV fluids before/after transplant
- Stem cells are infused at bedside by nurse
 - Length of time depends on the volume in the bag
- Nurses monitor for possible reactions (itching, hives, cough, vital sign changes, etc.)
- Report any new symptoms to nurse right away

ENGRAFTMENT

- Red blood cells, white blood cells, and platelet counts will drop after conditioning therapy, which is expected.
- These counts will rise as new blood cells start to grow from your stem cells following your transplant. This is called “**engraftment**”.
- Usually, the first cells to return are white blood cells, then red blood cells, and finally platelets
- As you wait for engraftment, you experience the side effects of conditioning therapy and can experience complications of transplantation

COMMON SIDE EFFECTS OF CONDITIONING THERAPY

- Nausea and vomiting
- Diarrhea
- Decreased appetite
- Mouth sores (mucositis)
- Hair loss
- Pain
- Fatigue, changes in memory & concentration
- Decreased blood cell counts
- Infection

PAIN MANAGEMENT

Pain is common during transplant.

- Examples: mucositis, abdominal pain, body aches, bone pain, continued chronic pain

It is OK to use pain medication to control your pain!

- You will not become addicted if using pain meds for pain management
- Dosing can be adjusted to reduce side effects while still controlling your pain.

Our goal is to keep your pain at a comfortable level.

- We continuously ask about your pain to make sure we are meeting this goal. Please let us know your expectations.

DECREASED BLOOD CELL COUNTS

White Blood Cells (WBCs)

- Neutrophils are a type of WBC that can respond to infection
- Absolute Neutrophil Count (ANC) < 500 means you are neutropenic and at high risk for infection

Red Blood Cells (RBCs)

- Carry oxygen to the body
- Measured in the blood by Hemoglobin (Hgb)
- Hgb < 7.0 requires blood transfusion unless specified by BMT doctor

Platelets

- Help to prevent bleeding by helping the blood to clot
- Bleeding risk increases when platelet count is < 50
 - Please report any signs of bleeding
- Platelet count < 10 requires platelet transfusion

INFECTION

Can occur anywhere in the body

- You will take medications to prevent infections:
 - Bacteria (Antibiotics)
 - Viruses (Antivirals)
 - Fungus (Antifungals)

Temperature **100.4 degrees F or higher**

- Nurses will start “Fever Protocol”
 - IV antibiotics
 - Tests are done to rule out infection

PRECAUTIONS BEGIN ON ADMISSION

Infection Prevention

- Everyone MUST wash their hands (patients, visitors, staff)
- Absolutely NO sick visitors
- No fresh or dried flowers or live plants allowed
- Remove gel, artificial nails and all piercings except earrings
- No contact lenses- please bring your glasses

Bleeding Prevention

- Soft toothbrushes will be provided and avoid dental flossing
- Avoid “blood thinners” (ex. Aspirin, coumadin, Lovenox, Fragmin, etc.)
- Avoid forceful nose blowing
- Electric razors only
- Avoid trimming fingernails or toenails

ADMISSION DAY

- Enter at Red Valet
- Proceed to the Admission Office
- Complete admission paperwork
- Room number and directions

3 WEST/4 WEST

You will be admitted to a room on 3 West or 4 West.

- All rooms are private.
- Each room has a television and internet access
- Patients are not allowed to leave the unit unless its for a test or procedure (a mask must be worn when leaving the unit)
- Patients cannot visit in other patients' rooms
- Visiting hours are subject to change
- One adult may stay overnight. A pull-out bed and linens are available. Consider bringing a bed pad for comfort.
- Visitors may not use patient's toilet but may use shower and sink.
- Restrooms are in the hallway and a shower is available in the Family Lounge.
- NO SICK VISITORS !!!**

ITEMS TO CONSIDER BRINGING

- Several changes of clothing, extra undergarments, hangers
- Feet must be covered at all times when out of bed
 - Slippers with non-skid soles, sneakers preferred for safety
 - No “flip-flops”, Crocs®, and open toed shoes
- Head coverings – hats, scarves, wig, turban
- Personal care items - toothpaste, deodorant, liquid bath soap, skin lotion, shampoo, electric razors only
- Clean or new pillow or comforter
- Framed (non glass) pictures
- Hearing aids and eyeglasses, if you use them
- Small crafts, hobbies, cards, board games, books, reading materials, laptop computer, games, DVDs/CDs

Laundry

- There is a washer and dryer located on the fifth floor for patient and caregiver use.
- BMT patients are not allowed to leave the floor; therefore, caregivers are responsible for doing patient laundry
- If there is no caregiver available, a family member or friend can drop clean clothes off at the front and staff will help exchange them for the patient's dirty ones.
- Patients are encouraged to bring many changes of clothes for their hospital stay or may wear hospital provided gowns

ADDITIONAL ITEMS TO CONSIDER BRINGING

- Patient and Caregiver Transplant Guide
- Copy of Advance Directive
 - Living Will Declaration
 - Health Care Surrogate Designation
- Diabetic supplies
- Personal medical equipment
 - Walker, cane, wheelchair, Bipap machine, etc.

BMT SERVICE

- Physician
- Fellow
- Advance Practice Provider
- Registered Nurses
- Social Workers
- Dietitians
- Case Managers
- Pharmacists
- Physical Therapy

DAILY ROUTINE

- Routine blood work
- Daily weights
- Weekly rectal swabs
- Nursing assessments & vital signs every 4 hours
- Orthostatic (postural) vital signs
- Hourly rounding & hourly measurement of intake and output
- EAT/DRINK/WALK
- Exercise (Physical therapy/walking on unit)
- Medications, IV fluids and transfusions as needed
- Personal hygiene (CHG, saline mouth rinses)

CHG (Hibiclens)

CHG (Hibiclens) is a medication for your skin that helps prevent infection.

- CHG soap or wipes must be used daily.
- CHG soap is applied directly to skin and rinsed in the shower.
- CHG wipes can be used in place of showering and do not require rinsing
- Do not use CHG on face - use liquid soap/body wash instead.

MOUTH CARE

- Rinse mouth with saline 4 times daily
- Toothbrush should be changed 48 hours after chemotherapy completed and every 7 days while neutropenic
- Keep toothbrush open to air to dry
- No dental flossing, toothpicks or water picks until platelet count is greater than 50,000

ORTHOSTATIC (POSTURAL) HYPOTENSION

- Occurs when there is a significant drop in blood pressure and increase in pulse with position changes
- Staff will assess by taking your blood pressure while you're lying and standing and compare the results
- When you have orthostatic hypotension you are great risk for passing out and falling
- Always report dizziness and light headedness to staff immediately

TREATMENT FOR ORTHOSTATIC HYPOTENSION

- Staff will encourage you to drink more fluids
- IV fluids
- Doctors will review your medications to see if they are increasing your risk for orthostatic hypotension
- Fall precautions- Your SAFETY is our #1 priority.

FALLS

Falls can be caused by:

- Orthostatic hypotension
- Side effects of treatment/medication
- Weakness/Fatigue
- Dehydration
- Decreased blood counts

FALLS

EVERYONE is at an increased risk for falling while in the hospital.

Here are some recent examples:

- 60 y.o. female, walking 30 or more laps per day, fell in the shower on day +8, fractured right lower leg requiring surgery
- 68 y.o. female, fell on the way out of the bathroom on Day -1, hit head on the bedside table requiring CT scans to rule out brain bleed
- 32 y.o. male, fell while getting off the toilet on Day +3, hit head on the grab bars, arms/shoulders scraped and bruised, CT scans and X-Rays required to rule out fractures and bleeding

FALL PRECAUTIONS

Staff will assess you frequently to determine if you are at a high risk for falling.

- A bed or chair alarm WILL be turned on
- You will be asked to get out of your bed or chair only with staff present for assistance
- Staff will stay at your side while in the bathroom (this is where falls most commonly occur)
- A camera could be placed in your room for closer monitoring

PREVENTING A FALL

Please partner with us to keep you safe!

- Call for assistance
- Wear closed-toe shoes and avoid slippery foot coverings
- Use recommended assistive devices
- Store personal items within reach
- Wear hearing aids & glasses if needed

DISCHARGE CRITERIA

Discharge occurs when:


- No fever for minimum of 24 hours
- Able to eat and drink
- Able to swallow oral medications
- IV meds/fluids manageable as outpatient

Preparation for Discharge:

- Caregiver is available 24 hours around the clock after discharge
- Caregiver needs to arrive to Moffitt 24-48 hours prior to expected discharge date to complete education and to prepare for discharge
- Housing arrangements are finalized with assistance of inpatient social workers
- All caregivers must attend BMT Caregiver Class

OUTPATIENT FOLLOW-UP

- Frequent visits to BMT Treatment Center
- Visits in BMT Clinic by your BMT doctor
- Stay locally for approximately 90 days after date of transplant with caregiver
 - Readmission to the hospital may be necessary during this time
 - Decision to return home is made by primary transplant doctor

A vibrant tropical beach scene. Two tall palm trees with green fronds and clusters of coconuts stand on the left. In the foreground, two large, circular thatched umbrellas made of dried palm fronds are positioned on the white sand. Under each umbrella, several white lounge chairs with yellow cushions are arranged. The beach curves along the edge of clear, turquoise water that transitions into a deep blue ocean. The sky is a solid, bright blue. In the top right corner, a light blue rectangular box contains the text "Deep Breaths! We are almost done!".

Deep Breaths!
We are almost
done!

GRAFT-VERSUS-HOST DISEASE (GVHD)

GVHD is an immune reaction involving the donor's T-cells

- ❑ T-cells are a type of white blood cell in the immune system recognizing which cells belong in your body
- ❑ Once your donor's T cells begin to grow, they may recognize your body as foreign, and attack your body's cells
- ❑ Benefit is Graft-vs-Tumor effect

TYPES OF GVHD

Acute GVHD

- Occurs within the first 100 days after transplant
- Symptoms can begin around Day 15-30 after transplant
- Generally affects the skin, the GI tract, and the liver

Chronic GVHD

- Includes any symptoms that exist or that occur 100 days after transplant
- Symptoms may develop 3 months or more after transplant
- Can affect skin, liver, eyes, mouth, lungs, GI tract or other body systems

Acute and Chronic GVHD differ in signs and symptoms and time of onset
Patients may develop one type, both types, or neither

ACUTE GVHD OF THE SKIN

- May appear as a faint rash on the neck, chest, back, hands, or feet
- May develop into a general redness similar to a sunburn with peeling or blistering of the skin
- A skin biopsy may be done to help determine if the rash is GVHD or caused by something else, such as antibiotics

ACUTE GVHD OF THE GI TRACT

- Nausea, with or without vomiting
- Decreased or loss of appetite
- Unable to tolerate food, fluids, or oral medications
- Diarrhea (Can be large amounts and often watery)
- Abdominal pain, distension (swelling)
- Intestinal bleeding
- An upper and/or lower endoscopy may be done to obtain a biopsy to determine if GVHD is the cause of these symptoms or if symptoms are caused by something else, such as a virus.

ACUTE GVHD OF THE LIVER

- Blood tests done to look at liver function may be elevated.
- Right sided upper abdominal pain may be present
- Abdomen may be distended or swollen
- Yellowing of skin or of the eyes (jaundice)
- Urine may become tea colored

CHRONIC GVHD

Most common late complication of allogeneic transplant

Symptoms may include:

- Dry or irritated eyes, blurred vision, gritty feeling
- Dry mouth, mouth sores, difficulty swallowing
- Nausea, decreased appetite, diarrhea, weight loss
- Skin tightening or hardening, rash, pigment changes, hair or nail loss
- Joint tightness or stiffness, trouble bending or extending extremities
- Vaginal dryness or irritation

Different medications can be used to treat chronic GVHD

Patients may be referred to other health care professionals to help manage and treat Chronic GVHD symptoms

PREVENTING GVHD

HLA Matching

- Usually, the closer the match, the lower the risk
- Even with a “perfect” match there is still a risk.

Immunosuppressive Medications

- Medication to weaken the donor’s immune system.
- Refer to your consent form or ask your transplant doctor which immune suppressing medication(s) you will receive.

PREVENTING GVHD

Preventing Infections

- Immunosuppressive medications increase your risk of infection.
- Take medications on schedule and as prescribed
- Follow infection control guidelines to minimize risk

Protection from Sunlight Exposure

- UV rays can trigger a skin reaction that can cause GVHD.
- Use sunscreen at least SPF 30 and reapply often.
- Wear clothing to protect skin.
- Avoid exposure during peak sun hours

MEDICATIONS FOR PREVENTION AND TREATMENT OF GVHD

Drugs commonly used

- Tacrolimus (Prograf®)
- Sirolimus (Rapamune®)
- Methotrexate
- Cyclophosphamide(Cytoxan)
- Cyclosporine (Gengraf®)
- Mycophenolate Mofetil (Cellcept ®)
- Antithymocyte Globulin (Thymoglobulin® ATG)
- Other new drugs or clinical trials

TREATMENT FOR GVHD

Steroids are the first line treatment

- IV Methylprednisolone
- Oral Prednisone
- Oral Beclomethasone
- Oral Budesonide
- Hydrocortisone lotions or creams (topical)

Addition of other immunosuppressants (previously mentioned) provide a combination drug therapy in attempt to limit long term steroid use.

Please report any of the mentioned symptoms to your transplant team as soon as possible.

The earlier GVHD is treated, the better the outcome.

FOOD SAFETY



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Four Steps to Food Safety

813-745-3609

1. Clean

- Wash hands, produce, utensils and cutting boards before and after use.
- Wash canned goods before opening.

2. Separate food

- Keep raw meat, poultry, seafood and eggs separate from other foods.
- Use one cutting board for raw foods and another for cooked foods.

Food Safety Tips

813-745-3609

3. Cook to safe temperatures

- Use a food thermometer to measure the internal temperature of all meats and egg products.

See Diet Guidelines for specific temperatures.

4. Chill/Refrigerate

- Refrigerate or freeze meats, eggs and perishable within 2 hours of cooking or purchasing.

Food Safety Tips

813-745-3609

- Thaw food in the refrigerator, cold water or microwave.
- Cooked leftovers in the fridge should be thrown away after two days.

If you should have any questions concerning the Diet Guidelines and Food Safety for Patients with Decreased Immunity, please contact the Nutrition Department at 813-745-3609

Are there any questions?

