Presentation: Massage Therapy for Bone Marrow Transplant Patients

- **Title:** *Massage Therapy for Bone Marrow Transplant Patients*
- **Subtitle:** Supporting Healing & Comfort Through Touch
- **Shannon N McKnight, MS, LMT, BCTMB**
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Introduction

- **Objective of the Presentation:**
  - Define bone marrow transplants (BMT)
  - Discuss types of BMT and associated complications
  - Explain graft-versus-host disease (GVHD) and associated symptoms
  - Explore the role of massage therapy and esthetics in supportive care
- **Why This Matters:**
  - BMT patients experience pain, fatigue, anxiety, and immune suppression
  - Massage therapy and esthetics can offer symptom relief and improve quality of life

What is a stem cell? What is a Bone Marrow Transplant?

- The best place for us to begin is by getting a better understanding of what stem cells are, because they truly are the power house behind the transplant itself.
- I'm sure many of you over the last two decades have heard at least something about stem cells and the breakthrough treatments that have been created with them.
- Stem cells in our body can best be described as the "master" cells.
- They're like a "blank slate" of our cells and while they're the basis of every cell, tissue, and organ in the body they have the very unique ability to become, if necessary, any type of cell that our body may need.
- They are the only cells in our body that have the ability to constantly self-renew (making copies of themselves over and over) OR they have the ability to differentiate into other specialized cells, such as muscle cells, brain cells, or blood cells.
- *Because of these unique characteristics, stem cells play a crucial role in medical treatments because they can replace damaged or diseased cells*.
- The population I work within BMT have blood cancers, and blood stem cells are predominately made and stored by the body in the bone marrow.
- During the process of blood cell formation, Stem cells become new blood cells through hematopoiesis. Our bone marrow is the primary site this blood cell formation and is also the storage site for our stem cells.
- There are a lot of important scientific steps that take place for stem cells to differentiate into the necessary cells needed in the body, but for the purposes of this presentation, it's most important to know that they have the ability to become red blood cells, platelets, white blood cells OR T-cells, B-cells, or natural killer cells.
- With blood cancers, the body's production of blood cells is disrupted. When this happens abnormal blood cells can begin to take over and overwhelm our normal blood cells. This can happen due to mutations in the stem cells or in their environment.
- Leukemia and lymphoma both originate in the lymphocytes, or white blood cells, and impact our immune system.
  - Leukemia originates in the bone marrow and then spreads into the bloodstream. It's caused when there is an overproduction of abnormal white blood cells, also known as blast cells, that rapidly divide so uncontrollably that a buildup of the immature, non-functional cells crowd out space for

healthy cells. This leaves the person at risk for infection and impairs the bone marrow's ability to produce RBC's and platelets.
    - Lymphoma's develop in the lymphatic system and also affect certain white blood cells, specifically lymphocytes. When these lymphocyte cells divide rapidly and become lymphoma cells they can begin to bind together to form tumors.
- The stem cells are the foundation of bone marrow transplants because of their ability to regenerate the blood and the immune system. And when a person goes through a bone marrow transplant they are resetting the system by replacing the damaged or diseased bone marrow cells with new healthy cells, that can then begin to replicate or differentiate as they are designed to.
- There are multiple types of bone marrow transplants, and we're going to explore each one a little deeper. The ones we will discuss today are called autologous, allogeneic, haplo-identical, and CAR T therapy.

Autologous Transplant:

- Uses patient's own stem cells
- Lower risk of rejection
- Used primarily in multiple myeloma and lymphoma

- To briefly recap:
    - stem cells, which are mostly stored in the bone marrow, are the master cells that can become whatever cell is needed
    - when those stem cells mutate or are harmed by their environment, a bone marrow transplant can be one of the treatment options available to replace diseased cells with new healthy ones.

- Autologous transplants are when a person's own cells are being used and they are used most often in conditions where the bone marrow itself is NOT diseased such as with certain blood cancers like lymphoma or multiple myeloma or other autoimmune disorders, such as multiple sclerosis.
- With autologous transplants the patients own stem cells are harvested before the transplant and before using chemotherapy or radiation to kill off the cells.
- After the stem cells are harvested the patient endures intensive treatment to destroy the cancer cells and then their own stem cells are reinfused back into their body to help rebuild the immune system.
- The biggest advantage of an autologous bone marrow transplant is that there is no risk of rejection, when the cells could attack the body.
- There are multiple stages to an autologous BMT:
    - During the first stage, or *mobilization stage*, the patient receives daily injections of a drug called filgrastim for about five days prior to and throughout collection. Though ultimately the number of injections they receive is dependent on the patients specific disease type.
        - As massage therapists I want you to know about filgrastim because it can cause the patient to have body aches or bone pain because it's forcing the body to make more stem cells.
        - This is a time where massage therapists can come in handy just providing some comfort and relief.
    - The second stage is called the *collection stage*. At this time the patient must undergo a lengthy day, typically between 4-6 hours, during which their stem cells are collected from their blood or bone marrow.
    - The third stage is the *conditioning and treatment phase*. At this time the patient is going to receive high dose chemotherapy for about two to nine days prior to transplant, depending on the specific disease type. This is done to completely kill off all cancer cells and remaining bone marrow cells prior to transplant.

- The second and third stages are when I as a massage therapist really begin to offer support, because this is a stressful time and the patients body goes through a lot of changes.
- If you prefer a visual diagram, the graphic to the right of this slide offers a really good illustration that the leukemia and lymphoma society has provided online of these various stages.

Allogeneic Transplant:

- Uses donor stem cells (related or unrelated)
- Risk of graft-versus-host disease (GVHD)
- Used in leukemia, aplastic anemia

- Allogeneic transplants are a type of transplant where *donor* cells are used for treatment.
- This kind of transplant is best used for diseases where the bone marrow is producing defective blood cells such as with leukemia, aplastic anemia or other genetic disorders such as sickle cell disease or thalassemia.
- These transplants are also used for high-risk cases of Hodgkin's lymphoma, myelofibrosis and myelodysplastic syndrome.
- With allogeneic transplants the process includes finding a donor using a process called an HLA match. HLA stands for human leukocyte antigen.
- HLA matching is completed and determines the availability of a matched related donor or a matched unrelated donor.
    - Matched related donors have the highest potential for being a *full* match and being a full HLA match reduces the risk of rejection and other complications.
- The process of completing an allogeneic transplant includes killing off the diseased bone marrow of the patient using high dose chemotherapy or radiation and then completely replacing those cells with the donors healthy stem cells.
- The advantage of this kind of transplant is that the donors healthy immune cells can help fight off the patients cancer.
- The biggest disadvantage of this kind of transplant is a complication called GVHD. This stands for graft-versus-host-disease.
    - GVHD occurs when the donors healthy immune cells begin to see the patients tissues as foreign and attacks them. Understanding GVHD and the related symptoms is important for us as massage therapists and estheticians so I'll be going into that in more detail later in the presentation.

Haploidentical Transplant:

- Uses a half-matched donor (often a family member)
- Increasingly common for those without a full match

- A haploidentical transplant is considered when a fully identified HLA matched donor cannot be found.
- Haploidentical stem cell transplants are when the donor shares 50% of the HLA markers with the patient recipient and in these cases when the donor is a half match it's more likely that the matched donor is going to be a family member…usually a parent, child or sibling.
- There are still many complications and risks for the patient, including infection and GVHD, and attempts are made to manage this with immunosuppressive therapies. Patients are monitored frequently for signs of infection in the early post-transplant period.
- Graft failure will be a concern, as the donor cells may not engraft properly due to the limited HLA match.

- Despite the complications and risks with this kind of transplant they are increasingly common when attempts to find a full match donor have failed.

CAR T-cell Therapy

- In the blood cancer institution that I work for we also see a number of cell transplants called car T cell therapy, or Chimeric Antigen Receptor T-cell therapy. That's a mouthful.
- Originally approved by the FDA in 2017 as a pediatric ALL treatment, CAR T-cell therapy transplants are now also used for patients who have been diagnosed with diffuse large B-cell lymphoma, mantle cell, and multiple myeloma.
- As a reminder, your T cells are one of the most important types of white blood cells that are predominantly responsible for arming our immune response.
- With CAR T-cell therapy those T-cells are removed from the blood and then go through a process of having a new gene inserted inside of them to make it easier for the T-cell to recognize and fight the patients cancer.
- The process involves several steps:
    - First the T-cells are collected from the patient during a process called leukapheresis, which can take about 4-6 hours. Massage therapists may be beneficial during this time because the common side effects of leukapheresis are not limited to but include fatigue and muscle cramps.
    - Next the cells are sent off to a lab where millions of the modified T-cells are created. It takes approximately 3-6 weeks for the lab to create a beneficial enough amount of these car T cells for the patient. During the waiting period while the new cells are being created, the patient may likely undergo recommended chemotherapy or radiation to prevent disease progression.
    - Finally, once the car T cells are returned to the medical facility the patient is scheduled for their transplant and they will spend approximately 2 to 4 weeks admitted to the hospital.
- During the time after transplant the patient will be monitored for various side effects, the most concerning of which is called cytokine release syndrome.
- While CRS is concerning, it is not unexpected. It occurs when the CAR T cells begin to engage with the target cancer cells. Cytokines are released into the bloodstream and the cells rapidly expand creating an excessive immune reaction and that can lead to widespread inflammation and organ dysfunction.
- The most common symptoms of the CRS include fever, fatigue, muscle aches, increased heart rate, nausea and vomiting; with severe symptoms being a high fever over 102°F, severe low blood pressure, difficulty breathing, confusion or altered mental status, or organ dysfunction.
- These side effects can be a sign that the car T cells are actively working against the patients cancer. Medical care teams will be monitoring the patient closely for this reaction, but as a massage therapist who may spend an extended period of time in the room with a CAR T transplant patient, it's important to be aware of the CRS symptoms and report anything to the medical team as soon as possible.

Common Complications of BMT

- Include:
    - risk of infection due to weakened immune system,
    - mucositis which is a painful inflammation of the digestive tract,
    - graft failure when the donor cells do not engraft properly in the recipient,
    - organ damage such as kidney or liver failure as well as impact to the lungs,
    - fatigue and weakness which can have a long term effect,
    - and graft versus host disease.
- An additional complication for car T cell therapy includes something called ICANS, or immune effector cell associated neurotoxicity syndrome. Referred to most often as just neurotoxicity.
    - This can be serious and causes symptoms such as:
        1. headaches, changes in consciousness, confusion or agitation, seizures, tremors, trouble speaking or understanding, and loss of balance.
        2. Anytime you're working with a patient who exhibits these symptoms it is necessary and important for you to report these observations to the bedside RN as soon as possible, and chart what was observed and who was notified.

- **Infection Risks** – Due to weakened immune system
- **Mucositis** – Painful inflammation of the digestive tract
- **Graft Failure** – Donor cells don't engraft properly
- **Organ Damage** – Kidneys, liver, and lungs can be affected
- **Fatigue & Weakness** – Long-term effect of treatment

Long-Term Needs of Bone Marrow Transplant Survivors

BMT survivors require ongoing care for **years after transplant** due to potential late effects of treatment.

Common Long-Term Effects After a BMT

- **Fatigue & Weakness:** Can persist for months to years
- **Chronic GVHD:** May cause skin issues, organ involvement, and joint pain
- **Neuropathy:** Nerve damage leading to numbness, tingling, or pain
- **Bone Health Issues:** Risk of osteoporosis due to steroids or chemotherapy
- **Heart & Lung Concerns:** Increased risk of cardiovascular disease
- **Emotional & Psychological Health:** Anxiety, depression, or PTSD-like symptoms

Understanding Graft-Versus-Host Disease (GVHD)

- **What is GVHD?**
    - Occurs when donor cells attack the recipient's body
    - More common in allogeneic transplants
- **Types of GVHD:**
    - **Acute GVHD:** Within 100 days post-transplant, affects skin, liver, and gut
    - **Chronic GVHD:** Can last months to years, affecting multiple organs
- **Symptoms of GVHD:**
    - Skin rash, dry eyes, liver problems, joint stiffness
    - GI issues (nausea, diarrhea)

- Graft-versus-host-disease because it is common and can potentially be a serious complication of mostly allogeneic bone marrow transplants.
- GVHD occurs when the *donated* immune cells, which are considered the graft, see the recipients (or hosts) tissues as foreign and begin to attack them. So the healthy donated cells begin to attack the tissues of the patient because they see the patients tissues as something out of place.
- There are two different types of GVHD. Acute and Chronic
    - Acute GVHD occurs usually within the 1st 100 days post-transplant, though it can appear later.
        1. It primarily affects the skin, gastrointestinal tract, and the liver.
        2. With the skin we're most likely to see things like rashes, redness, or peeling skin that would be similar to a sunburn.
        3. In the GI tract we're most likely to see the patient have nausea, vomiting, and sometimes severe diarrhea.
        4. With the liver we will see elevated liver enzymes in their labs and may potentially see jaundice in the patient.
    - Chronic GVHD it is most likely to develop after 100 days post-transplant and can last anywhere from months to years.
        1. It often resembles an autoimmune disorder.
        2. It too can affect multiple organs including the skin, mouth and eyes, lungs, liver, as well as joints and muscles.
        3. symptoms for chronic GVHD of the skin are going to often look like thickening, scarring, or pigment changes.
        4. Chronic GVHD of the mouth and eyes most likely will include dryness, ulcers, or irritation.
        5. Chronic GVHD of the lungs will cause the patient to experience shortness of breath or lung fibrosis.
        6. With the liver again, the patient may have liver dysfunction, including jaundice.
        7. If the joints and muscles are impacted you're most likely going to see stiffness, weakness, and pain.
- The risk factors for GVHD are going to be greater for patients who have a greater difference between the donor and the recipient when it comes to their HLA markers that we talked about earlier.
    - The greater the difference the higher the risk.
    - Patients with unrelated donors are going to have a higher risk than a matched sibling donor.
    - And patients who receive peripheral blood cell transplants versus bone marrow are also going to be at a higher risk due to them having more immune T cells.
- medical teams are going to be monitoring the patient because these are known potential side effects, however we as massage therapists who spend lengthier periods of time with the patient, typically 30-60

minutes at a time, are pivotal when it comes to patients potentially receiving quicker care for any side effect that may arise. So during that time when we are talking with or working on the patient we are likely to observe concerning side effects that should be immediately reported to the patients bedside nurse. From that point it is up to their medical team to do whatever is necessary to determine how those need to be addressed.

- it is still our responsibility as massage therapists who are at bedside with transplant patients to be bringing any concerns, even if there are concerns that we think may have already been addressed, it is important for us to take note of any concerns and bring those to the attention of the medical team, most appropriately the bedside nurse.

Role of Massage Therapy in BMT Recovery/Benefits of Massage Therapy for BMT Patients

- **Pain Management:** Reduces muscle and joint pain
- **Stress Reduction:** Lowers cortisol, promotes relaxation
- **Improved Sleep:** Helps with insomnia and fatigue
- **Lymphatic Support:** Encourages circulation and immune function
- **Emotional Well-Being:** Decreases anxiety and depression

- We need to understand that our place in the care of these patients can be very long term, if the patient desires.
- BMT patients can present to us in various locations. You may see them in private practice, outpatient infusion settings, and in hospital-based settings where they may be admitted.
    - They come into our outpatient infusion clinics for treatment when they're at the beginning their journey and we may be asked to address side effects long before transplant occurs.
    - I'm fortunate that in my hospital I circulate to all of the hospital/clinic areas so I have the ability to be able to meet these patients throughout their treatment journey. It may be early on in their diagnosis and may work with them in the outpatient setting and then continue to see them when they're finally admitted to the hospital for their transplant. Once they are discharged from the hospital and return to the outpatient clinic I can continue to monitor them and work with them there as well. I think I'm fortunate to have a very unique situation where our massage therapy team has a long-term connection with our oncology and transplant patients that provides a unique amount of continuity of care. And that's really important to our patients.
- The number one supportive process that massage therapists provide, even though we are hands-on providers, includes the therapeutic presence that's inherent in the work that we do. Patients are incredibly overwhelmed and have a lot of anxiety going through this process and while we are not therapeutic counselors, our presence in the room and in their lives can be of extraordinary benefit, and we should not ever think less of that...we are not "just" massage therapists, or "just" estheticians.
- In addition to our therapeutic presence, the types of things that we as massage therapists can help with are:
    - pain management as massage can reduce muscle and joint pain,
    - stress reduction which we've just briefly talked about when massage therapy can help reduce cortisol and promote relaxation,
    - massage therapy can help improve sleep...Insomnia and fatigue are common concerns for cancer patients as a whole but especially for patients who are admitted to the hospital, which is a very difficult place to get restorative sleep.
    - lymphatic support is something that we provide through the encouragement of circulation and immune function

- and an overall increase in emotional well-being due to the fact that massage therapy can decreases anxiety and depression through both healthy touch and connection.

Pre-massage Considerations

- **Immune Suppression Precautions:**
  - Use **strict hygiene practices**
  - Avoid massage if patient has fever or active infection
- **Bleeding Risk:**
  - Avoid deep pressure if patient has low platelets (thrombocytopenia)
- **Skin Sensitivity:**
  - GVHD can cause fragile skin; use gentle techniques
- **Fatigue Levels:**
  - Adapt session length to patient's energy levels

- First and foremost, we need to be actively communicating with the oncology medical professionals involved in the patients care. Even if the facility you may be working in expects you to perform massage or a patient contacts you in your private practice seeking deep tissue massage, it's important for *you* to understand what you do and when it may not be appropriate so that you can clearly communicate to the medical team and/or the patient. You must feel empowered to professionally communicate your role, and also your limitations.
- Before working with the patient you want to be sure they don't have an active fever, infection, clotting disorder/blood clot, or *severe* GVHD. In the hospital-based setting this can be done by checking with the bedside RN and with the electronic medical record. If you are working in private practice it's important that you've not just received consent to treat from a doctor, but don't be afraid to ask your client if you can directly communicate with their medical team to understand what their most up-to-date treatment and health status is.
- Assessing the patients condition EACH TIME you work with them is critical. Changes can occur quickly with BMT patients. Each time you have a session with a patient you need to treat the collection of information like it's the first time you've seen them and not make assumptions.
  - What is the patients fatigue level? That can change rapidly as well. Transplant patients are encouraged to walk as much as possible, even when they're admitted, so you can't assume they are not active. If the patient has been feeling fatigued or experiencing insomnia, adjust your sessions to a shorter duration.
  - Checking platelet levels before each session for the most up to date information is crucial! In the hospital setting these labs are collected each morning for admitted patients and prior to infusion for outpatient (at least in my setting). Also, if you are seeing clients in private practice ask them how recently they've had labs drawn and if they would mind showing you the results. These days many people utilize a patient accessible electronic health record (for example, MyChart) app where they can easily access this information if they are willing. It's important that you as the therapist set clear guidelines on what information is needed in order to practice safely. Guidelines we use in our hospital are that anyone with platelets at 20,000 or less may not receive massage therapy because research has shown that at that level spontaneous blood vessel rupture may occur, so any additional pressure from massage therapy could cause harm. In this case, we pivot to other hands-on modalities, such as an energy therapy.
  - Check the skin integrity during each visit. Prior to working with the patient ask them if they've noticed any changes to their skin health. Is it thinning or thickening? Is there swelling? Are there abrasions or rashes? Make sure to assess for these during your massage as well, because the patient or client may not have noticed.

    - Just as we learned in foundational oncology massage training, ALWAYS ask about and be aware of venous access devices, such as PICC lines, Ports, central lines, and also continuous medication pumps. Even if you're checking within an electronic medical record prior to treatment, check on the patient prior to their massage to verify correct location. And this is very important in the private practice setting where you won't have access to these details in advance.
    - Assess for pain, avoiding too much overstimulation over sore areas, and avoiding abdominal massage with patients who have suspected GI involved GVHD.
- Use of appropriate infection control practices is critical with BMT patients due to their severe immuno-compromised state.
    - Wash hands thoroughly with soap and water or hand gel prior to any massage, and soap and water after using creams or lotions.
    - Always use gloves when a patient has been given high dose chemotherapy, as some chemotherapy medications emit through the pores of the patients skin.
    - Sanitize all linens and tools before and after use if in private practice.
    - Avoid exposing yourself to these patients if you have a cold, flu or other contagious condition, and use a mask if appropriate.
- Use of CHG compatible lubricants. Many patients who are undergoing bone marrow transplants must bathe with a product called Chlorhexidine gluconate or CHG. In a 2019 study in the journal *Blood* by the American Society for Hematology it was revealed that 20-45% of inpatient transplant patients obtained a bloodstream infection during their hospitalization that led to prolonged hospitalization and increased mortality.
    - One method of infection prevention that is used is the daily bathing with CHG.
    - It's important for us as massage therapists to understand this because the creams or lotions that we use, whether with patients in the hospital setting or in private practice, must be compatible with CHG. If they're not it negates the benefit in protecting the immuno-compromised patient against potential infection.
    - As a good regular practice my guidance is for hospital-based practitioners to work with their medical teams or hospital regulatory departments to only order CHG compatible lotions or creams. For massage therapists who are working in private practice with clients who have undergone transplant I would recommend having that conversation with the client to determine if they are using CHG wash or wipes on a regular basis. In the private practice setting you're less likely to see this but it is still used as we have patients that still have venous access lines even if they're not currently admitted to the hospital. So you need to have a CHG compatible lubricant available and maintaining communication with your patient or client is critical to understanding how we can best support them even when it comes to the products that we're using.

Communication & Consent

- **Build Trust:** Explain what to expect during the session
- **Encourage Feedback:** Adjust pressure and positioning as needed
- **Document Sessions:** Track patient response over time

- When it comes to consent and communication you must be clear and help to establish a trustworthy relationship. Our therapeutic presence provides the foundation for that. Building trust with the patient is one of the absolute most important things that we can be doing as oncology massage therapists because so much of what they are already going through is confusing and complicated.
- Approach the patient or client with a level of calm and give them the time to express their concerns and to ask questions, even if they aren't related to your services, and use honesty when responding, including

referring back to the medical team when necessary. We need to clearly communicate what our purpose is and encourage feedback.

- Remember too that oncology patients don't often feel they have an opportunity to say no at any point in their care. So it can be very empowering for these patients to come in contact with someone they can comfortably and confidently say no to. No matter how beneficial we believe our services to be, we need to open the door for them to have the ability to do that yet maintain the trusted open dialogue so that they know that even if they've said no they can come back around again at some point and say yes.
- documenting our sessions with our patients is vitally important. My understanding is that there are some facilities who may not require this however I strongly feel that as massage therapists who are trained to document sessions even with relatively healthy clients, we really need to be documenting if we are working in a hospital setting or outpatient clinic because this is our professionalism in how we communicate with other healthcare providers as well as with the patient about the work that we are doing and what we're observing.
- Our charting and the manner that we communicate our findings and our treatment of this patient legitimizes us as professionals in this population.
- And finally, I think it's really important that if we are seeing patients repeatedly that we take the time each session to understand from the patients perspective what kind of difference our services made to them the last time we were together, and also to understand and always treat this patient as a new individual each time we walk in the room.
    - These bone marrow transplant patients are going through so many changes that can happen in such a rapid pace that it's really important that we not get complacent in our treatment of them just because we've already seen them several times. We never ever want to get too comfortable with the health status of the patient because if we do we start overlooking the things that could be happening right in front of us that we could be bringing to the attention of medical professionals.

How Massage Therapy Can Support Long-Term Recovery

A. Pain & Fatigue Management

- **Gentle massage techniques** reduce muscle tension and improve circulation
- **Shorter, more frequent sessions** help prevent overstimulation

As we learn in foundational oncology, the importance of a gentle touch with patients who are in active treatment is paramount. This is not a sprint but a marathon and our bone marrow transplant patients may need gentle techniques for some time.

B. Supporting Skin & Soft Tissue Health (GVHD Considerations)

- **Light lymphatic drainage** for swelling
- **Myofascial release** to improve mobility and ease skin tightness

Swelling is very common for bone marrow transplant patients, especially those with GVHD involvement, due to inflammation caused by the tissues being attacked. This is when knowledge on lymphatic drainage as supplementary education can be very beneficial or having a trusted referral resource. Regardless of the type of cancer, continue to assess the patient's risk of lymphedema.

C. Enhancing Emotional Well-Being

- Regular massage sessions provide **stress relief**
- Helps **improve sleep** and reduce anxiety levels

Supportive massage therapy is going to enhance emotional well-being. Bone marrow transplant patients are no different in this case. We may also want to acknowledge the loved ones or caregivers of our patients, and offer to provide care when appropriate.

D. Improving Circulation & Neuropathy Symptoms

- **Reflexology & light foot massage** can improve nerve function
- **Hydrotherapy & contrast therapy** can be used alongside massage

As a reminder, neuropathy is a nerve disorder that causes pain, numbness, swelling, muscle weakness, and often burning and shooting pain. For BMT patients this can occur due to several factors:

- Chemotherapy and total body irradiation used before transplant can damage the nerves, leading to peripheral neuropathy. In addition, there are drugs commonly used, such as vincristine, cisplatin, and thalidomide, that are particularly neurotoxic.
- GVHD of the nervous system.
- Immunosuppressive Medications – Drugs that can be used to prevent GVHD can cause neurotoxicity, leading to symptoms such as numbness, tingling, and muscle weakness.
- Nutritional deficiencies can occur due to malabsorption or poor intake, which can also lead to neuropathy.
- Infections due to a weakened immune system can leave a BMT patient susceptible to viral infections such as CMV (cytomegalovirus) or VZV (varicella-zoster virus)…both of which can cause nerve damage. Patients will likely be taking medications to prevent these viral infections as part of their medical protocol.
- Metabolic issues like diabetes, electrolyte imbalances, and kidney or liver dysfunction can sometimes be worsened by transplant related treatments, contributing to neuropathic pain.

There are many ways that neuropathy can be managed, including pain management medications, physical therapy, exercise, and managing underlying disease, however massage therapy may also help. In my experience BMT patients are most likely to see neuropathy in their hands and feet, and this may not be symmetrical. Massage can help to improve circulation, relax muscles, and increase range of motion, but massage for neuropathy should be discussed with the patient before proceeding with any techniques. The massage therapist needs to discuss with the patient if they find touch of these areas to be therapeutic, or if touch is too painful. Do not assume a one-size fits all approach. If the patient is interested in trying massage for their neuropathy it's important to continue with an open line of communication in using a pressure that's both comfortable to the patient and also works within the guidelines of their platelet level.

Massage Techniques & Modifications

A. Safe & Recommended Techniques

1. **Gentle Swedish Massage** (Effleurage, Light Petrissage)
    - Benefits: Promotes relaxation, reduces stress, improves circulation.
    - Avoid deep tissue pressure due to potential bruising.
2. **Lymphatic Drainage Massage (LDM)**
    - Benefits: Helps reduce swelling, supports immune function.
    - Use very light, rhythmic strokes toward lymph nodes.
3. **Craniosacral Therapy**
    - Benefits: Relieves tension, supports the nervous system.

    - Uses light touch techniques on the skull and spine.
4. **Reflexology** (for hands and feet)
    - Benefits: Helps stimulate circulation and relaxation.
    - Avoid if the patient has peripheral neuropathy or sensitivity.
5. **Myofascial Release (Modified for Fragile Skin)**
    - Benefits: Helps with **GVHD-related stiffness**.
    - Use **slow, sustained pressure**, avoiding aggressive stretching.

Special Considerations Based on BMT Complications

A. Patients with Graft-Versus-Host Disease (GVHD)

- **Acute GVHD:** Avoid massage if the skin is inflamed, peeling, or ulcerated.
- **Chronic GVHD:** Use **extra lubrication** (gentle creams, hypoallergenic oils).

B. Patients with Peripheral Neuropathy

- **Symptoms:** Numbness, tingling, or pain in hands and feet.
- **Massage Modifications:** start with light pressure and slow movements, increasing as patient and platelets safely warrant.

C. Patients with Low Platelets or Bleeding Risk

- **Use only feather-light touch** to prevent bruising.
- **Avoid deep pressure or friction-based techniques.**

D. Patients with Fatigue & Weakness

- Use **shorter, more frequent sessions**.
- Encourage **breathwork and guided relaxation techniques**.

Areas to Avoid or Modify

❌ **Deep Tissue Work & Trigger Point Therapy** – High risk of bruising and discomfort.
❌ **Over-Stimulating the Immune System** – Avoid vigorous techniques.
❌ **Sensitive Areas (GVHD or Fragile Skin)** – Use only **light pressure** if tolerated.
❌ **Massage Over Medical Devices** (PICC lines, ports, catheters).
❌ **Work on the Abdomen During Active GVHD or Digestive Issues**.

Session Structure & Duration

It's important to remember that these are GENERAL guidelines based on my training and experiences working with this population.

First Session Guidelines

- **Start with a shorter session (15-30 minutes)** to assess the patient's response.
- Use a **semi-reclined or side-lying position** for comfort.
- Ask for **real-time feedback** about pressure and sensation.

Frequency & Length of Sessions

Stage Post-Transplant	Recommended Duration	Frequency
0-3 Months	15-30 minutes	1-2x per week depending on duration and patient tolerance. Start with shorter sessions and build from there. Incorporate
3-6 Months	30-45 minutes	Weekly or biweekly
6+ Months	45-60 minutes	As needed

After the Massage: Post-Session Care

A. Encourage Hydration

- Suggest **room-temperature water or herbal tea**.
- Avoid diuretics (like caffeine) that may dehydrate the body.

B. Monitor for Reactions

- Watch for **dizziness, excessive fatigue, or skin reactions**.
- If any adverse reaction occurs, **report it to the medical team immediately**.

C. Document the Session

- Note the **patient's response, pressure tolerance, and any concerns** for continuity of care.

Creating a Long-Term Plan for BMT Patients

A. First 6 Months Post-Transplant:

✓ Focus on **stress relief & gentle touch therapy**.
✓ Avoid **stimulating deep circulation too aggressively**.
✓ Use **breathwork & relaxation techniques** to support emotional well-being.

B. 6 Months – 2 Years Post-Transplant:

✓ **Incorporate gentle myofascial release** if mobility is affected.
✓ Address **GVHD-related stiffness & scar tissue** cautiously.
✓ Continue **lymphatic drainage techniques** as needed.

C. 2+ Years Post-Transplant:

✓ **Deep tissue work can be introduced gradually** (with medical clearance).
✓ Continue **maintenance massage for overall health & quality of life**.
✓ Encourage **self-care practices like stretching & mindfulness**.

The role of Estheticians in Caring for Bone Marrow Transplant Patients

I am a licensed massage therapist, not a licensed esthetician. I want to acknowledge our esthetician members with us from S4OE and their contribution to the quality of life that bone marrow transplant patients may receive through esthetic treatments. A special thanks to Karey York with S4OE for her support and discussion specifically related to care provided by estheticians. Specific questions related to esthetic care for bone marrow transplant patients should be directed to a licensed esthetician to ensure they are working within their scope of practice.

Summary & Takeaways

- **Bone Marrow Transplants Save Lives, But Have Challenges**
- **Massage Therapy is a Safe, Effective Supportive Therapy**
- **Individualized Care is Key** – Every patient's needs are different
- **Collaboration with Medical Team is Essential**

- While we have learned more about the life saving nature of these treatments, they are not without their challenges and we as massage therapists have a unique opportunity to potentially see complications as they arise and to provide relief when appropriate.

- Though massage therapy can be a safe and effective supportive therapy and provide a vital role in symptom relief, it's important that we better understand the BMT complications that we've discussed today, when we need to take additional precautions, and how we need to be communicating with medical professionals.

- Emphasize the importance of individualized care for each and every bone marrow transplant patient. While there are several symptoms that can arise after a bone marrow transplant these things can appear and change rapidly and so we need to be paying close attention to each patient and treating them like a unique patient each and every time we see them. We must always use a safety first approach, using gentle and

relaxing techniques that avoid deep pressure and circulatory overload and emphasizing holistic care to support the patients mental, emotional, and physical well-being.

- While BMT patients do recover and can begin to live a more normal life, massage therapy and esthetic are going to continue to benefit long-term survivors because patients may experience fatigue, neuropathy, discomfort, and stress symptoms for years to come.

Additional Resources & Training for Massage Therapists

- **Advanced Oncology Massage Courses**
- **Lymphatic Drainage Therapy Training**
- **Hospice & Palliative Massage Training**
- **Other Supplemental Courses, such as energy therapy, craniosacral therapy, reflexology, acupressure massage**