OHSU Health Care System - Patient Care Services

NPEOC: Bone Marrow Transplant / Peripheral Blood Stem Cell And Cord Blood Transplant

Effective Date: November 01, 2009
No: HC-PCS-AAC-S002

NURSING PRACTICE EXPECTATIONS OF CARE:

(formerly 02soc)

STANDARD 1:

Assessment and Diagnosis - The nurse collects relevant health data and analyzes the data to determine diagnoses.

Assessment:

1. On admission assess:
   A. patient/family knowledge and understanding of transplant treatment plan, possible side effects and symptom management.
   B. history of diagnoses, myelosuppressive or immunosuppressive therapies, antibiotic regimens, use of hematopoietic growth factors.
   C. history of factors that may compromise platelet function, use of aspirin or non-steroidal anti-inflammatory agents

2. On admission begin and assess patient per:
   A. Standard of Nursing Care: Acute Care Adult, Inpatient
   B. Clinical Practice Guideline, Neutropenia (Adult)
   C. Clinical Practice Guideline, Chemotherapy, if chemotherapy is to be given

3. Reassess every 4 hours:
   A. Vital Signs (temperature, pulse, respirations, blood pressure) - Note and report chills or fever > 38° C (100.4° F).

   Note: Fever may be the only sign or symptom of infection and sepsis in the neutropenic patient. Contact medical team immediately for first neutropenic fever spike, and initiate antibiotic therapy within 60 minutes of identifying fever.

4. Reassess every 8 hours and increase to every 4 hours (Q4H) with onset of variances:
   A. Respiratory
   B. Cardiovascular
   C. Gastrointestinal
   D. Include bedside testing hemoccult status of stools
   E. Genitourinary
      a. Include bedside testing heme-test status of urine if appropriate
      b. Vaginal drainage, menses - Characteristics, color, clots, volume
   F. HEENT –
      a. On initial assessment obtain history of risk factors for mucositis (chemotherapy regimen, oral hygiene, dental problems, smoking history)
      b. Assess oral cavity for mucositis (Use Oral Assessment Guide- see attachments)
      c. Reassess q 8 hours for OAG score <16 (Grade 0-1: prevention of mild mucositis) and q 4 hours for OAG score >16 (Grade 2-4: moderate to severe mucositis)
   G. Pain
   H. Safety Risk
      a. Maintain precautions appropriate for myelosuppression.
      b. Provide appropriate central line care.
      c. Determine fall and safety risk level of patient at least every 12 hours.

5. Reassess daily and increase to every 8 hours with onset of variances:
   A. Skin
   B. Psych/social
   C. Mental/cognitive
   D. Musculoskeletal
   E. Neurovascular
   F. Neurological
   G. Coping
Labs/Diagnostics:

1. Monitor ordered labs:
   A. CBC with differential and platelets Note: Anticipate transfusion of Packed Red Blood Cells for Hct <24.0; anticipate transfusion for platelet count < 10 K (10,000). Refer to Bone Marrow Transplant: Supportive Care Orders (PO-1720). Maintain current type and cross in Transfusion Services.
   B. Electrolytes Note: Anticipate orders for electrolyte repletion for low values: Refer to Bone Marrow Transplant: Supportive Care Orders (PO-1720).
   C. CMV by PCR
   D. PT, PTT
   E. IgG level
   F. Immunosuppressive Agent blood levels (i.e. Cyclosporine, Tacrolimus)
   G. Antibiotic blood levels

2. Draw immunosuppressive agent levels from CVC lumen not designated and used for drug administration.

**NOTE:** Immunosuppressive agents adhere to the inner surface of CVC catheters. Blood drawn from a lumen previously infused with an immunosuppressive agent will be contaminated by the residual agent on the CVC surface, resulting in a falsely high lab value.

STANDARD 2:

Outcome Identification - The nurse identifies individualized expected outcomes for the patient.

Expected Outcomes:

1. Patient/family verbalizes and demonstrates understanding of transplant process and treatment plan as patient’s condition changes.

2. Participation in self care strategies to decrease the risk and severity of predictable side effects of treatment:
   A. Patient/family demonstrates understanding of and follow safety requirements and limitations.
      a. Protective Precautions
      b. Bleeding precautions
      c. BMT Unit Visitor Policy (HC-PCS-BMT-P017).
   B. Patient/family demonstrates understanding of and follow oral care, and skin care routines. Patient, family, and care providers will state effects of disease or therapy on oral mucosa, oral care activities, and signs and symptoms of oral mucositis to report to health care providers. Patient will perform oral care at appropriate level and frequency as determined by OAG assessment.
   C. Patient/family demonstrates understanding of and follow activity requirements and limitations.
   D. Patient/family demonstrates understanding of and follow dietary requirements and limitations.


STANDARD 3:

Develop and Implement Plan of Care - The nurse develops and implements a plan of care to assist the patient in achieving expected outcomes.

1. On admission begin:
   A. Oral care interventions based on Oral Assessment Guide Score (see attachment). Offer ice chips for comfort and saline rinses frequently.
   B. Skin care
      a. Shower daily using liquid antibacterial soap
      b. Use tepid water (not too hot)
      c. Gentle soap application, never scrub
      d. Rinse well
      e. Pat dry—do not rub
      f. Inspect skin and report any rashes, redness, swelling, other skin changes.
      g. Keep nails short and smooth. Report hang nails, split or rough nails or cuticles
      h. Avoid scratching
      i. Use lotion (Lubriderm) as needed to moisturize the skin
      j. Eucerin may be used for severe dryness
      k. NDX (Nystatin/Desi/In/Xylocaine ointment) as ordered
      l. Avoid creams, lotions, deodorants and all skin products containing alcohol or perfumes
      m. Saline eye drops may be used to prevent eye dryness
      n. Saline nasal spray may be used to prevent nasal mucosa dryness and bleeding
   o. **SPECIAL CONSIDERATIONS**
- during total body irradiation:
  - use no lotions, creams, ointments, powders, or deodorants until after the last treatment of the day.
- during high dose chemotherapy:
  - use no lotions, creams, ointments, powders, or deodorants until 24 hours after the last treatment
- during treatment with chemotherapy agent Thiotepa:
  - shower 2-3 times daily
  - pay special attention to skin folds
  - avoid tight, restrictive clothing
  - no lotions, creams, ointments, powders or deodorants until 24 hours after completion of thiopeta.
- for diarrhea:
  - Report skin breakdown, blisters, pain, bleeding, swelling
  - Cleanse perianal area gently after each stool
  - May use sitz bath with tepid water
  - May use peri bottle with tepid water
  - Avoid toilet tissue
  - Blot gently with moist cloth to cleanse
  - Pat skin dry with cloth
  - May use unscented moist towelettes (baby wipes)
  - NOTE: Avoid wipes with witch hazel.
  - Apply moisture barrier ointment, or NDX ointment after cleansing
- for Graft vs host disease (GVHD)
  - avoid soaps
  - Use Cetaphil lotion for bathing
  - request medication to prevent itching

2. Institute BMT Unit procedures as needed
   1. NWMTP: Total Body Irradiation (HC-PCS-BMT-P040)
   2. NWMT: High Dose Chemotherapy Administration with Hematopoietic Progenitor Cell Transplant (HC-PCS-BMT-P027)
   3. Procedure for First Febrile Episode in Neutropenic BMT Patients (HC-PCS-BMT-P037) for first neutropenic fever spike >38 degrees Celsius.

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4. Infuse Hematopoietic Progenitor Cells per appropriate procedure
   1. NWMTP: Infusion of Cryopreserved Autologous/Allogeneic Hematopoietic Progenitor Cell Products (Apheresis, Marrow, Cord Blood) (HC-PCS-BMT-P035)
   2. NWMTP: Infusion of Non-Cryopreserved Allogeneic Hematopoietic Progenitor Cell Products (Apheresis, Marrow, Cord Blood) (HC-PCS-BMT-P034)

5. Institute transfusion procedures for transplant as needed
   1. BMT Unit: Blood Product Administration in Bone Marrow/Peripheral Blood Stem Cell Transplant: Platelet, Red Blood Cell, and Fresh Frozen Plasma Administration (HC-PCS-BMT-P036)
   2. Infusion of Cryopreserved/Non-Cryopreserved Donor Leukocyte Products (DLI) (HC-PCS-BMT-P033)

Nutrition/IVs:

1. Begin Low Bacteria Diet
2. Obtain Nutrition consult on admission.
3. Promote optimal nutrition and fluid intake.
4. Minimize interruptions into vascular access (IV) system. Do not disconnect IV lines from patient access unless necessary.
5. Designate one lumen of the CVC for intravenous immunosuppressive agent administration.
   A. Clearly mark lumen of CVC with a piece of tape labeled with drug name.
   B. If necessary, post a sign over the head of the bed noting which lumen to use for immunosuppressive agent administration, and which lumen to use for drawing drug level blood sample.

Medications:

1. Assure oral medications are taken on schedule by the patient.
   A. If patient is unable to take oral medication, consult Licensed Independent Practitioner for IV alternative or recommendations.

2. Administer ordered immunosuppressive agents. (Refer to procedure NWMTP: Immunosuprressive Agents Administration
3. Infuse immunosuppressive agents into CVC lumen clearly marked for drug administration.

**Activity/Safety:**

1. On admission begin:
   A. Protective Precautions regardless of white blood cell count.
   B. Hand washing on entry to Hematological malignancy unit or before contact with hematological malignancy/HSCT patients on other units.

   **HAND WASHING NOTE:** Hand washing should be done with an antimicrobial soap and water; alternatively, use of hygienic hand rubs is another acceptable means of maintaining hand hygiene.

   **HAND WASHING NOTE:** When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry.

   **HAND WASHING NOTE:** Follow the manufacturers recommendations regarding the volume of product to use.

   c. No one may enter the hematological malignancy unit or room of HPC patient if they have symptoms of infection (fever, cough, upper respiratory symptoms, diarrhea)
   d. Patients to wear high particulate mask when leaving unit. Patient to wear mask when leaving room on non-BMT unit.
   e. Patients to remain on unit except for diagnostic tests starting day of transplant.

   B. Bleeding precautions
   a. Avoid trauma
   b. Avoid IM/SQ injections
   c. Avoid forceful nose blowing

2. No pet therapy for transplant patients without order from MD
3. Ensure PT consult ordered
4. Encourage activities, including ADLs.
5. Provide periods of uninterrupted rest.
6. Encourage participation in prescribed exercise program.
   A. Patient should walk in hallway on nursing unit a minimum of three times daily
   B. Patient should sit in chair a minimum of 30 minutes, three times a day

7. Encourage use of exercise equipment.
8. Concerning vaccinated persons visiting neutropenic persons-
   A. MMR vaccine virus is not transmitted to contacts unless a rash develops.
   B. The MMR vaccine virus is not transmitted to contacts, and transmission of varicella vaccine is rare (CDC,2002).
   C. Completion of the hepatitis B vaccine and the influenza vaccine is recommended for household contacts of immunocompromised patients and healthcare workers who care for these patients.

**Teaching/Discharge planning:**

1. Describe to patient and family/care givers the conditioning protocol including:
   A. chemotherapeutic agents, stating name(s) of agent(s), route, method (infusion push)
   B. schedule of administration
   C. immediate and long term side effects of conditioning protocol (chemotherapy/radiation treatment)
      a. nausea and vomiting
      b. infection
      c. bleeding
      d. diarrhea or constipation
      e. skin changes (rash, bruising, redness)
      f. oral mucositis, sores
      g. emotional or mental changes
      h. fatigue
      i. weakness
   D. Instruct patient and family on nursing interventions to identify and decrease the incidence and severity of complications of therapy
   E. Instruct patient and family on self care measures to identify and decrease incidence and severity of complications of therapy

**STANDARD 4:** Evaluation - The nurse evaluates the patient's progress toward attaining expected outcomes and revises the plan
of care accordingly.

2. Document patient and family education on plan of care, assessments, interventions, and other relevant information. Include the patient's and family members' level of understanding of education.
4. Document patient and family emotional and coping support.
6. Document blood counts and pertinent lab values on the Bone Marrow Transplant Lab Flowsheet.
7. Document blood type and CMV status on the Bone Marrow Transplant Lab Flowsheet and Kardex.
8. Document last date blood cultures were drawn, and site, on the Kardex.
9. Document HPC reinfusion on Northwest Marrow Transplant Program HPC Reinfusion Record
10. Document adverse reaction to infusion on Northwest Marrow Transplant Program Report of Adverse Reaction to HPC Components.

Bibliography:


Related Forms:

- Standard of Care: Acute Care Adult, Inpatient
- Department Infection Control Policy for BMT (HC-PCS-BMT-P024)
- BMT Unit: Blood Product Administration in Bone Marrow/Peripheral Blood Stem Cell Transplant: Platelet, Red Blood Cell, and Fresh Frozen Plasma Administration (HC-PCS-BMT-P036)
- NWMT: Immunosuppressive Agents Administration (HC-PCS-BMT-P030)
- NWMT: Infusion of Cryopreserved Autologous/Allogeneic Hematopoietic Progenitor Cell Products (Apheresis, Marrow, Cord Blood) (HC-PCS-BMT-P035)
- NWMT: Infusion of Non-Cryopreserved Allogeneic Hematopoietic Progenitor Cell Products (Apheresis, Marrow, Cord Blood) (HC-PCS-BMT-P034)
- NWMT: Infusion of Cryopreserved/Non-Cryopreserved Donor Leukocyte Products (DLI) (HC-PCS-BMT-P033)
- NWMT: BMT Unit: Oral Care Protocol For Bone Marrow Transplant (HC-PCS-BMT-P042)
- BMT UNIT: Neutropenia in the Bone Marrow Patient (HC-PCS-BMT-P039)
- NWMT: Procedure for First Febrile Episode in Neutropenic BMT Patients (HC-PCS-BMT-P037)
- Skin Care Protocol For Bone Marrow Transplant (HC-PCS-BMT-P041)
- NWMT: Total Body Irradiation (HC-PCS-BMT-P040)
- Bone Marrow Transplant: Supportive Care Orders (PO-1720)
- Nutrition Manual: Low Bacteria Diet Attachment #1: Oral Assessment Guide (OAG) Attachment #2: Oral Care Interventions Based on OAG Scores

Supersedes:

May 2001, November 2005