Nursing Diagnosis: Knowledge Deficit Related to Pancytopenia

Criteria: Patients who are at risk for pancytopenia or are pancytopenic.

Pancytopenia - reduction in the number of red cells, white cells and platelets. Causes include diseases of the bone marrow and chemotherapy.

Outcomes:

1. The patient/caregiver will be able to verbalize an understanding of pancytopenia and its effects on the body.

2. The patient/caregiver will be able to verbalize an understanding of the signs and symptoms of pancytopenia to report to the physician/NP.

3. The patient/caregiver will be able to verbalize an understanding of the methods used to increase blood cell counts and avoid symptoms and effects of pancytopenia.

4. Patient/caregiver will integrate self-care practices that monitor/improve condition, including the following:
   - Proper hand-washing technique.
   - Sterile technique while performing ordered treatments, if applicable.
   - Administration of medication(s) that promote blood cell production (if ordered by physician/NP).

5. Symptoms are controlled with current treatment/prophylaxis.

Assessment: The nurse will assess the following on an ongoing basis as indicated:

1. The patient’s/caregiver’s understanding of pancytopenia and its effects on the body. This understanding will include:
   - The definition of pancytopenia, myelosuppression, anemia, thrombocytopenia, leucopenia, granulocytopenia and neutropenia.
   - Normal blood level ranges.
   - The definition of nadir and the nadir period for the patient’s specific treatment.
• Causes of pancytopenia:
  o Disease-induced.
  o Treatment-induced.

2. The patient’s/caregiver’s understanding of the signs and symptoms of pancytopenia to report to the physician/NP (infection, bleeding/bruising, etc.).

3. The patient’s/caregiver’s understanding of the methods used to increase blood cell counts and avoid symptoms and side effects of pancytopenia (medications, diet, infection control, etc.).

4. At each visit, the nurse will assess the following:
   • Vital signs (especially temperature).
   • Full body systems assessment, focusing on signs and symptoms of infection, bleeding, and anemia.

**Interventions:**

1. The nurse will review with the patient/caregiver the following:
   • The definition and causes of pancytopenia (disease-induced vs. treatment-induced).
   • Normal blood level ranges for hemoglobin, hematocrit, platelets and white blood cells.
   • The definition of nadir and the nadir period for the patient’s specific treatment.

2. The nurse will teach the patient/caregiver the following signs and symptoms to report to the physician/NP:

   Signs and symptoms of anemia:
   • Fatigue.
   • Shortness of breath.
   • Increased heart rate.
   • Dizziness upon rising from a laying or sitting position.
   • Headaches.
   • Pale skin color and conjunctiva.
   • Chest pain.

   Signs and symptoms of leukopenia:
   • Fevers (temperatures greater that 100.5 ° F).
   • Chills or shakes.
   • Sudden onset of new pain.
Signs of infection (although these signs may not occur with a low white blood count):
- Redness.
- Swelling.
- Pus or drainage from cuts, wounds or IV access sites.
- Cough (productive and nonproductive).
- Burning on urination.
- Mouth sores or whitish mouth coating.

Sign and symptoms of thrombocytopenia:
- Increased bruising or bruising without injury.
- Petechiae.
- Nosebleeds, bleeding gums, rectal bleeding.
- Pain or burning on urination.
- Blood in the urine, phlegm or stool.
- Temperature of 100.5 or greater.
- Drainage, pain or redness around any tube or implanted device.

3. The nurse will teach the patient/caregiver the following interventions/precautions, as indicated:
   Low white blood cell/infection precautions:
   - Frequent hand-washing for the patient and those in frequent contact with the patient.
   - Limit contact with people who are sick.
   - Do not share eating utensils or dishes.
   - Refrain from dental work.
   - Suggest the patient talk to the physician/NP before getting immunizations.
   - Avoid crowds (i.e., malls, restaurants, etc.).
   - Give prompt attention to injuries.
   - Avoid raw food such as eggs and unpasteurized milk.
   - Eat only fruits and vegetables that can be peeled, washed and dried thoroughly (unless prohibited by the physician).
   - Organic fruits and vegetables should be soaked and thoroughly cleaned before eating or cooking.
   - Use small containers for food and avoid leftovers.
   - Use precautions when caring for pets: avoiding emptying litter boxes and cleaning birdcages and aquariums.
   - Avoid cut flowers and house plants (water standing in containers for long periods is a medium for bacteria growth).
Low platelet/bleeding precautions:
- Avoid activities that increase risk for injury or bleeding (i.e., sports, strenuous exercise).
- Avoid the use of sharp objects (scissors, razors, etc.).
- Do not take aspirin, ibuprofen (Advil®, Motrin®), naproxen sodium (Aleve®).
- Use a soft toothbrush or oral swabs, avoid aggressive tooth flossing.
- Do not use rectal suppositories or take rectal temperatures.

Strategies for low red blood cell count/anemia:
- Conserve energy and rest between activities.
- Drink plenty of fluids (non-alcohol and non-caffeine) unless the physician/NP has restricted fluids.
- Request family/friend assistance when fatigued.

4. The nurse will teach the patient/caregiver the rationale and process for the use of medications and/or other methods to increase blood cell counts.

5. The nurse will demonstrate and observe the patient/caregiver performing the following:
- Proper hand-washing technique.
- Sterile technique while performing specific treatments (i.e., central line dressing changes, wound care) when appropriate.
- Correct administration of medication(s), if ordered, to increase blood cell count (i.e., Neupogen®).

6. The nurse will obtain and monitor patient's blood cell counts as ordered by the physician.

7. The nurse will report to the physician/NP the following:
- Fever greater than 100.5° F (unless otherwise specified by the physician).
- Redness, drainage, foul odor, swelling, pain or other adverse signs and symptoms at catheter sites, wounds, etc.
- Burning or pain with urination.
- Abnormal breath sounds, changes in the patient’s respiratory status or new sputum production.
- Bleeding.
- Excessive bruising.
- Excessive weakness or fatigue.
- Changes in the oral mucosa.
- Changes from baseline vital signs, indicative of anemia or bleeding.
8. The nurse will provide and review with the patient/caregiver written pancytopenia information as outline in the Patient Education Addendum.

9. The nurse will document all assessments, interventions/ treatments and outcomes of care per policy and procedure.