

Oncology Emergencies

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Hyperleukocytosis

- Peripheral WBC count greater than $100,000/\text{mm}^3$
- Causes increased blood viscosity (thickness) → cells clump → thrombi (clots) in microcirculation
- Happens in patients who are presenting with leukemia
- Symptoms:
 - Shortness of breath
 - Tachypnea
 - Cyanosis
 - Blurry vision
 - Agitation, confusion, delirium
 - Ataxia

Hyperleukocytosis

- Potential complications:
 - CNS hemorrhage
 - Pulmonary leukostasis (WBC clump in lungs)
 - Acidosis/alkalosis
 - Renal failure
- Management:
 - IV fluid hyperhydration (up to 3000 ml/m²/day)
 - Sodium bicarbonate
 - Allopurinol
 - Blood products as needed
 - Chemotherapy

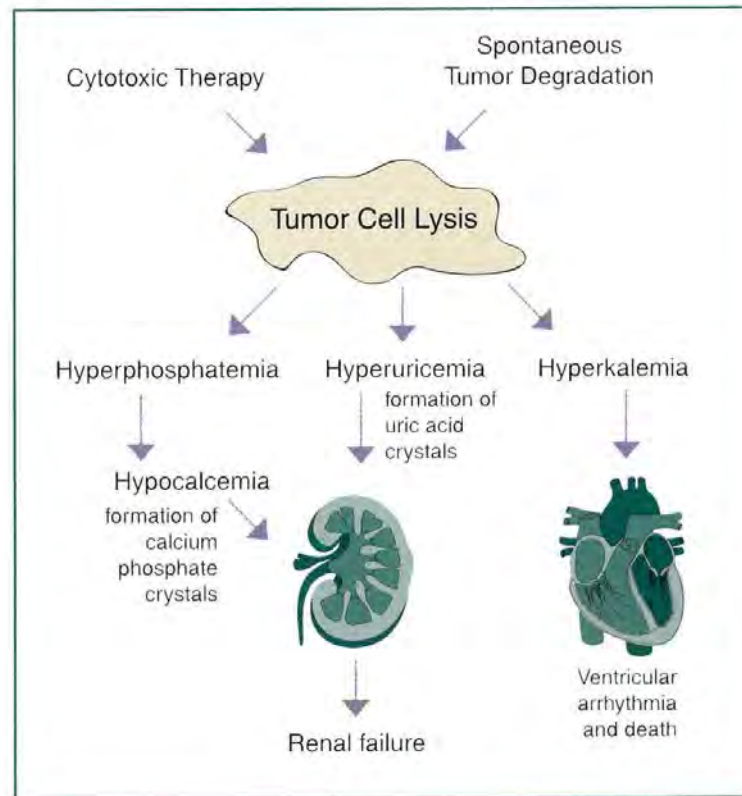
Hyperleukocytosis

- Nursing assessments:
 - Urine output
 - Respiratory status
 - Bleeding
 - Neurologic status/level of consciousness
 - Monitor weight

Tumor Lysis Syndrome

- Severe metabolic abnormalities as a result of death and breakdown of tumor cells
 - Tumor cells burst and release contents into circulation
- Patients with leukemia and lymphoma at highest risk
- Symptoms:
 - High uric acid
 - High phosphate
 - High potassium
 - Low calcium
 - Increased BUN and creatinine

Tumor Lysis Syndrome



- Can lead to kidney failure and cardiac dysfunction

Tumor Lysis Syndrome

- Management:
 - IV hyperhydration (3000 ml/m²/day): no added potassium!
 - Lasix if fluid overload
 - Correct electrolyte imbalances
 - Sodium bicarbonate
 - Kayexelate
 - Calcium Gluconate
 - Allopurinol 100 mg/m²/dose PO TID

Tumor Lysis Syndrome

- Nursing assessments:
 - Record intake/output and manage fluid balance
 - Obtain VS and blood work as ordered (electrolytes at least every 6-12 hours)
 - Assess respiratory status
 - Monitor for decreased urine output and edema
 - Monitor neurologic status
 - Monitor for cardiac arrhythmias

Septic Shock

- Systemic response to infection in the blood
 - Usually gram-negative bacteria, from endogenous flora (live in our own body)
- Symptoms:
 - Hypotension
 - Decreased perfusion
 - Acidosis
 - Decreased urine output
- Risk factors:
 - Altered mental status
 - Prolonged neutropenia (>7 days)
 - ANC <100
 - Breaks in skin or mucous membrane
 - Invasive procedures
 - Malnutrition
 - Asplenia

Septic Shock

- Consider and prevent sepsis when a patient presents with:
 - Known/suspected infection
 - Fever (or hypothermia)
 - Tachycardia, tachypnea
 - Peripheral vasodilation (warm, flushing)
 - Increased OR low WBC
 - Decreased mental status
- Progression:
 - Infection → sepsis → septic shock
 - Sepsis is confirmed when patient develops any organ failure
 - **Septic shock= sepsis + hypotension (despite fluids)**

Septic Shock

- Complications:
 - Can lead to DIC, renal failure, pulmonary edema, coma, multi-organ failure, and even death
- Management:
 - Early recognition and treatment of infections and sepsis
 - Fluid volume resuscitation (20cc/kg, as fast as you can; can repeat up to 60cc/kg in the first hour)
 - Vasoactive medications to maintain BP
 - Early administration of broad-spectrum antibiotics

Septic Shock

- Nursing assessments/interventions:
 - Monitor patient status and VS continuously
 - Monitor fluid intake and output
 - Obtain reliable IV site; administer fluid and boluses
 - Obtain blood cultures and administer IV antibiotics promptly for febrile neutropenic patients
 - Educate patients/caregivers about importance of preventing infections and reporting fevers right away

Disseminated Intravascular Coagulation (DIC)

- Body's blood clotting factors are used up faster than body can replace them → bleeding
 - Starts as petechiae, bruises, purpuric rash
 - Leads to uncontrolled bleeding
- Risk factors:
 - Infection (gram-negative sepsis)
 - Malignancy
 - Trauma
- Signs and symptoms:
 - Low platelets (<20,000)
 - Prolonged PT/PTT, increased D-dimer
 - Low fibrinogen
 - Petechiae/bruising/purpura
 - Excessive bleeding

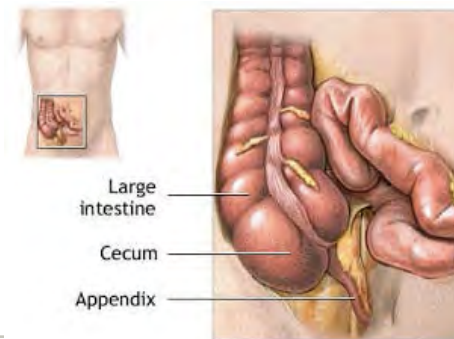


DIC

- Management:
 - Symptom management (control bleeding)
 - Administration of blood products (fresh frozen plasma, cryoprecipitate, platelets, PRBCs)
- Nursing assessments/interventions:
 - Assess sites and amount of bleeding (including in emesis, urine and stool)
 - Assess tissue perfusion
 - Apply pressure to any bleeding sites
 - Administer blood products as ordered

Typhlitis

- Bacterial invasion of cecum → necrotizing colitis
- C.diff and Pseudomonas are most common pathogens
- Risk factors:
 - Severe neutropenia
 - Leukemia
 - Infection
 - Mucositis
 - Chemotherapy: Vincristine
- Symptoms:
 - Severe abdominal pain
 - Profound neutropenia
 - Fever
 - Distended and hard abdomen
 - High-pitched, decreased, or absent bowel sounds
 - Nausea/vomiting, diarrhea



Typhlitis

- Complications:
 - Sepsis
 - Necrosis of cecum
 - Ostomy
 - Death
- Management:
 - Broad-spectrum IV antibiotics
 - Abdominal X-ray or CT scan
 - Surgical intervention if needed to control bleeding, repair or prevent perforation

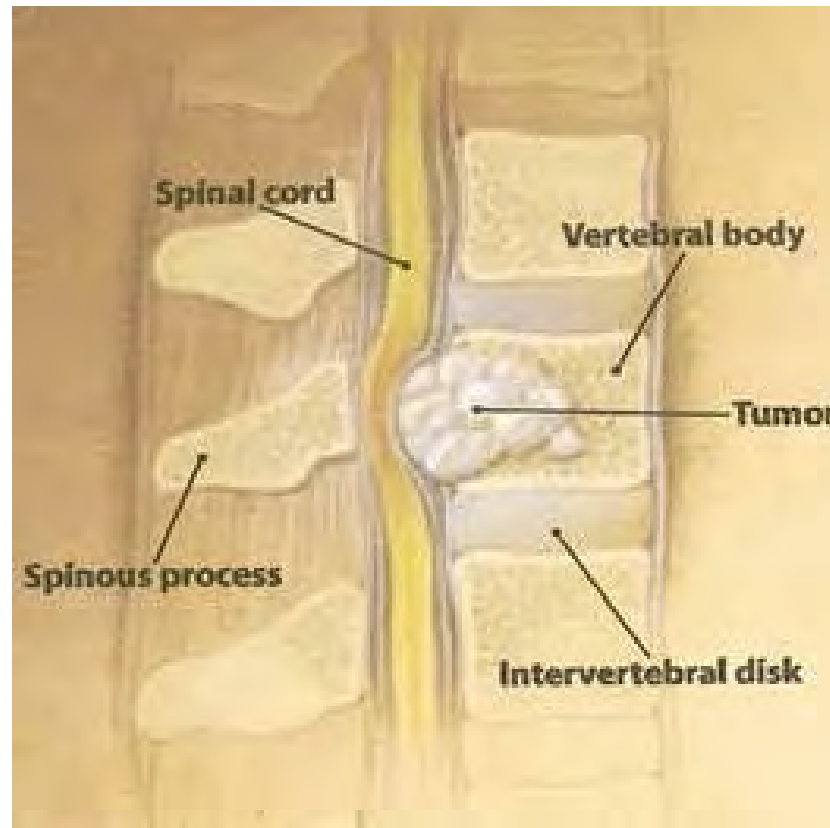
Typhlitis

- Nursing assessments/interventions:
 - Assess bowel sounds and abdominal pain/tenderness
 - Assess VS
 - Measure abdominal girth
 - Assess nausea/vomiting, diarrhea
 - Pain management
 - Ostomy care

Spinal Cord Compression

- Compression of the spinal cord due to tumor invasion or increased pressure in the spinal canal
- Risk factors:
 - CNS tumors of the spinal cord
 - Neuroblastoma
 - Lymphoma
 - Metastatic sarcomas
- Presentation:
 - Pain in neck or back
 - Motor deficits: weakness, ataxia, decreased reflexes
 - Paralysis
 - Loss of pain or temperature sensation

Spinal Cord Compression



Spinal Cord Compression

- Complications:
 - Sensory or motor changes
 - Muscle atrophy
 - Paralysis
 - Decrease in bowel/bladder function
- X-ray/CT scan of spine
- Treat underlying disease
 - Steroids
 - Radiation therapy
 - Chemotherapy
 - Surgical decompression
- Management:

Spinal Cord Compression

- Nursing assessments/interventions:
 - Observe for neck/back pain, motor weakness, loss of sensation
 - Frequent neurological assessment
 - Help with positioning and range of motion
 - Skin care (if paralysis)
 - Consult physical therapy for rehabilitation

References

Kline, N. E. (2008). *Essentials of pediatric hematology/ oncology nursing: A core curriculum (3rd Ed)*. APHON: Glenview, IL.