Blood Disorders

PART THREE
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Semester 2

REVIEW YOUR OBJECTIVES

1

Neutropenia

- A reduction of neutrophils
- Closely monitored to evaluate patient's risk for infection
- Absolute neutrophil count (ANC)
  - Determined by multiplying the total WBC count by the percentage of neutrophils
  - Normal neutrophil range is from 2200-7700 cells/uL

2

Neutropenia: Clinical Significance

- Low grade fever is significant
- Neutropenic fever > 100.4 (38c)
- Neutrophil count <500u/L is a medical emergency
- **Blood cx stat & antibiotics need to be administered within 1 hour**

3

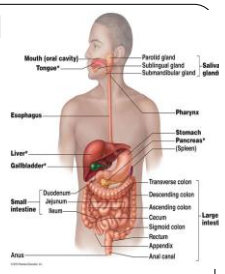
Neutropenia: Clinical Significance

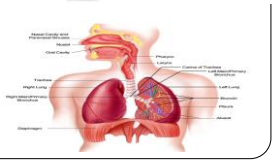
- Minor infections can rapidly lead to sepsis
- Normal flora often contribute to life threatening infections
- Classic S/S of infection are not present
  - Redness, heat, swelling, pus

4

Neutropenia: Clinical Manifestations

- GI
  - Sore throat/ mouth
  - Dysphagia
  - Diarrhea
  - Rectal pain
- Respiratory
  - SOB
  - Nonproductive cough





5

Neutropenia: Diagnostics

- Labs
  - WBC
  - Liver function test
- Bone marrow aspiration/ biopsy
- Assessment of Spleen

6

Neutropenia: Collaborative Care

- #1 Determine the cause
- #2 Identify Microorganisms
- #3 Start antibiotics ASAP
- #4 Administer hematopoietic growth factors
- #5 Implement protective environmental practices

7

Neutropenia: Collaborative Care

- Blood Cultures
  - Times 2 from two different sites
    - Peripheral
    - IV/ PICC line etc
- Pan cultures
  - Sputum, wound, urine

8

Neutropenia: Collaborative Care

- Granulocyte Colony- Stimulation Factor (G-CSF)
  - Used to prevent or reduce neutropenia severity & duration
  - If patient is neutropenic it is not as effective
    - Neupogen
    - Neulasta

9

Neutropenia: Special Considerations

- Normal flora is the most common source of infection
- Hands is the #1 mode of transmission
  - Direct contact

10

Neutropenia: Special Considerations

Be Cautious

- Other modes of transmission
  - Air, food, water, & equipment
- Healthcare workers or other patient's with transmissible illnesses

11

Neutropenia: Education

- Strict hand washing by all
  - #1 preventable measure
- Inform health care provider ASAP
  - Fever > 100.4
- Avoid crowds
  - If necessary: wear a mask

12

Neutropenia: Education

- Avoid uncooked meat, shellfish, unwashed fruits/ veggies
- Hygiene
  - Bathe daily
  - Moisturize
- No gardening or cleaning up after pets

13

Multiple Myeloma

- Plasma Cell Myeloma (AKA)
- Defined: neoplastic plasma cells infiltrate the bone marrow & destroy bone
- Prevalence:
  - 1% of all malignancies
  - 10% of all hematologic malignancies
  - Twice as common in men than in women

14

40 y/o male: Femur fx – ground level fall

Multiple Myeloma: Cause

- Unknown
- Possible
  - Exposure to radiation, organic chemicals, metals, insecticides
- May have a genetic factor
- May be influenced by viral infection

15

Multiple Myeloma: Patho

- Myeloma tumors produce monoclonal antibodies
  - One kind of antibody **(M Protein)**
- **M Proteins**
  - Ineffective & harmful
  - Do not fight infection
  - Infiltrate bone marrow

16

Multiple Myeloma: Clinical Manifestations

- Slow onset
  - Often diagnosed in advanced stages
- Major S/s
  - Bone pain
    - Pelvis, spine, rib

17

Multiple Myeloma: Clinical Manifestations

- Osteoporosis
- Osteolytic lesions
  - Skull, vertebrae & ribs
- Spinal cord compression
- Pathologic fractures
- Hypercalcemia

18

Multiple Myeloma: Clinical Manifestations

- **Hypercalcemia**
  - Renal issues
    - Renal tubular obstruction
  - GI issues
  - Neurological problems
    - Confusion, seizures, coma
  - Cardiac problems
- Bone marrow issues
  - ↓ RBC's, platelets, & WBC's

19

Multiple Myeloma: Diagnostics

- Lab
  - M- protein in blood & urine
  - Hypercalcemia
- Skeletal bone surveys
  - MRI, CT, PET scan
- Bone marrow aspiration or biopsy

20

Multiple Myeloma

- Staging & prognosis
  - B2 microglobin & Albumin
    - 2 main markers
    - ↑ B2 & ↓ albumin are associated with poorer prognosis

21

Multiple Myeloma: Collaborative Care

- Primary treatment recommendation
  - High dose Chemo followed by stem cell transplant
    - Standard of Care

22

Multiple Myeloma: Collaborative Care

- Treatment focus: relieve symptoms & prolong life
- Medication
  - Inhibit bone breakdown
  - Treat pain
  - Treat hypercalcemia

23

Multiple Myeloma: Collaborative Care

- Radiation
  - Treat localized lesions
- Surgical procedures
  - Support skeletal degeneration

24

25 Halo thoracic brace

Multiple Myeloma: Nursing Management

- **Major Focus: Bone breakdown issues**
- Hydration: IV fluids
  - Hypercalcemia
    - Increase IVF to maintain a UOP of 1.5L – 2L/ day
- Prevention of fractures
  - Use caution: ambulation & moving patient

26

Multiple Myeloma: Nursing Management

- Pain management
- Orthopedic supportive devices
  - Braces
- Infection prevention
- Psychosocial Needs

27

The End

- Thank you

28