

Infectious Disease Emergencies in Patients with Cancer: Rapid Fire

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KEYWORDS

- Infections • Cancer • Neutropenic fever • Hematopoietic stem cell transplant
- Cytokine release syndrome • Emergency department

KEY POINTS

- Infections in the patients with cancer can be difficult to diagnose because of their immunocompromised state, lack of typical inflammatory signs and symptoms, and atypical clinical presentations. Fever is often the only presenting symptom.
- Emergency physicians should maintain a high index of suspicion for infection in patients with cancer seeking care in the emergency department. Timely initiation of empiric antibiotic therapy is paramount, and a low threshold for inpatient admission is advisable.
- Patients with chemotherapy-related neutropenia are at risk for common bacterial as well as fungal infections. Hematopoietic stem cell transplant patients are at risk of infection with a broader range of organisms, including bacteria, viruses, and fungi, both common and atypical.
- Cytokine release syndrome can occur in patients receiving T-cell engaging immunotherapies. Although not infectious in origin, its initial clinical presentation may be indistinguishable from infection.

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CASE 1: NEUTROPENIC FEVER

Pertinent history: a 62-year-old woman with acute lymphoblastic leukemia (ALL) undergoing chemotherapy consisting of vincristine, doxorubicin, and prednisone presents to the emergency department (ED) for a documented oral temperature of 38.3°C (100.9°F). She takes her temperature daily and has not had a fever previously. She has no history of neutropenia. Her review of systems is positive only for mild lower abdominal pain. She denies headache, neck pain, cough, dyspnea, nausea, vomiting, diarrhea, dysuria, hematuria, urinary urgency or frequency, rash, odynophagia, or tenderness along her port site.

Physical examination: temperature, 38.6°C (101.5°F); blood pressure, 135/75 mm Hg; pulse, 85 beats/min; respiration rate (RR), 14 breaths/min; oxygen saturation (SpO₂), 97%.

General: well appearing, no acute distress.

Oropharynx: no oropharyngeal lesions or plaques.

Neck: supple without meningismus.

Cardiovascular: regular rate and rhythm without murmurs, rubs, or gallops.

Pulmonary: lungs clear to auscultation bilaterally.

Chest: right chest port site without erythema, fluctuance, tenderness, or drainage.

Abdomen: soft, mild tenderness to palpation in the right lower abdomen without rebound or guarding; bowel sounds are present.

Skin: warm and well perfused; no rashes, erythema, or swelling.

Neurologic: awake, alert, oriented ×4, normal strength and sensation throughout.

Diagnostic testing			
WBC ($\times 10^9/L$)	2.4	BUN (mg/dL)	12
ANC (cells/ μL)	370	Creatinine (mg/dL)	0.8
Hgb (g/dL)	12.2	AST (IU/L)	34
Platelets ($\times 10^9/L$)	380	ALT (IU/L)	18
Na (mEq/L)	142	Alkaline phosphatase (IU/L)	160
K (mEq/L)	3.8	Bilirubin (mg/dL)	0.7
Cl	101	CO ₂ (mEq/L)	26

Abbreviations: ANC, absolute neutrophil count; BUN, blood urea nitrogen; Hgb, hemoglobin; WBC, white blood cell count.

Urinalysis: negative nitrites, negative leukocyte esterase; no WBCs, red blood cells, or bacteria.

Plan: obtain blood cultures (1 set from port, 1 set from peripheral venipuncture) and urine culture. Initiate empiric antibiotics for neutropenic fever. Perform computed tomography (CT) of the abdomen and pelvis.

Update: CT shows bowel wall thickening of the cecum and distal ileum without stranding or pneumatosis. Because of concern for neutropenic enterocolitis, general surgery is consulted and the patient is admitted to the oncology ward for empiric broad-spectrum antibiotics.

LEARNING POINTS: NEUTROPENIC FEVER***Introduction and Background***

1. As the US population continues to expand and age, modern advances in early cancer detection and treatment have dramatically improved cancer survivorship. More

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