FEBRILE NEUTROPENIA

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Clinical Pearl
Avoid rectal exams and rectal temperature checks!

Fever

> 101 °F (38.3 °C)
or
> 100.5 °F for >1 hour (38 °C)

Neutropenia

ANC = WBC x (% Neutrophils + % Bands)
(Absolute Neutrophil Count)

- **<500** = Neutropenia
- **<100** = Severe Neutropenia

Febrile Neutropenia

Infections

Fungal

Consider with persistent or recurrent febrile neutropenia
- Candida
- Aspergillus

Others

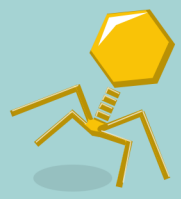
- Autoimmune
- Malignancies

Bacterial

- Gram negatives are both the most common and the most concerning
- Gram positive: notably **Staph epidermidis**
  - likely due to prolonged indwelling central venous catheter use
- Anaerobic and polymicrobial infections are relatively rare
- Consider Tuberculosis if the patient has the appropriate risk factors
  - e.g.: chemotherapy

Viral

- Can be prevented by appropriate prophylactic agents
- Reactivation of:
  - Herpes simplex 1
  - Herpes simplex 2
  - Herpes Zoster
  - EBV
  - CMV, etc.
- Primary acquisition of community-acquired respiratory viruses:
  - Adenovirus, Rhinovirus, Coronaviruses, Metapneumovirus



Presentation

- Fever is often the patient's only symptom due to poor immune response preventing localizing symptoms

Risk Factors

- Advanced age (>65 years old)
- Mucosal disruption/damage allows for translocation of bacteria into the blood
- Hematologic malignancy (higher risk than solid malignancy)
- Solid tumors, obstruction and/or surgical interventions increase risk of infection
- Recent chemotherapy

Work Up

All patients

- Assess patients within 15 minutes of triage
  - Rule out and manage sepsis
  - HPI / PE - Vital signs - IV Fluid

LABS

- Send 2x **blood cultures** immediately (peripheral and central lines)
- CBC w/ differential • BMP • Lactic Acid
- Urinalysis (UA) with culture • CXR

Patients with localizing symptoms or risk factors

- Cross sectional imaging
- Glucan and galactomannan
- RSV
- COVID
- Sputum cultures

Antibiotics

REMEMBER: Empiric antibiotics are crucial, with guidelines suggesting administration within **60 minutes** of patient presentation even if labs confirming neutropenia are not back

Gram negatives (especially Pseudomonas): highest risk of acute shock
- Start with anitbiotic coverage for gram negative bacteria
- Carbapenems and Piperacillin/Tazobactam (Zosyn) are also options

Go-To ABX
Ceftazidime
or
Cefepime

MRSA and anaerobic coverage can be included if there is a suspected or confirmed infection of this type
- Coverage = **Vancomycin**
- No mortality benefit except for severe sepsis, Gram (+) bacteremia, line infection, skin/soft tissue infection, severe mucositis, HDUS

Antifungals with micafungin can be added if persistent or recurrent fevers after 4-7 days. It is important to order serial glucan and galactomannan

Antibiotic Study

Monotherapy antibiotic treatment is as efficaious as combination therapy.

Consult Infectious Disease

- Mainly if fungal infection is suspected or patient is not progressing as expected