Antibiotic Algorithm for Neutropenic Patients

Adult Hematology, Blood & Marrow Transplant, and Cellular Therapy and
Antimicrobial Stewardship Programs
Approved by P+T 5.14.2019
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These are guidelines only and cannot be applied to every clinical situation. All patients should be examined carefully and treated for suspected focal infection if identified.

ANC < 500 or < 1000 and likely to fall to < 500 within 48hrs
+
Temp > 38 Celsius

Use Voalte to contact Transplant ID or ASP teams

ICU-level care needed for suspected infection?[1]

No → 1) D/C levofloxacin 2) Start cefepime[2,3,4, 5]

Yes →

Consideration of MRSA infection[6]?

No → Continue cefepime alone

Yes → Start vancomycin

Need for ICU-level care for suspected infection?

No → Positive cultures or work-up?

- No → • D/C vancomycin at 48hrs if applicable • Continue cefepime
- Yes → Change antibiotics to target clinical syndrome[8]

Yes → 1) D/C levofloxacin or cefepime 2) Start meropenem and vancomycin[3,4] 3) If not on voriconazole ppx, and high risk for candidemia[7], consider micafungin 4) Consider addition of tobramycin if not responding

Still unstable?

- Yes → 1) Step 4: Fungal Work-UP/Tx[9] 2) ID consult
- No → Positive cultures or work-up?
  - Yes → Change antibiotics to target clinical syndrome[8]
  - No → 1) D/C vancomycin 2) D/C tobramycin (if ordered) 3) D/C if micafungin (if ordered) once culture negative for 96hrs 4) Continue meropenem or change to piperacillin/tazobactam for 7 days from point of clinical stability 5) Restart bacterial

Resolution of fever and other signs of infection by day 4-5?

- Yes → Regardless of ANC, stop IV antibiotics 72 hours after last fever; restart bacterial prophylaxis if indicated
- No → 1) Step 4: Fungal Work-Up/Tx[9] 2) ID consult

Positive fungal work-up?

- Yes → 1) Cont antifungal 2) D/C other abx 3) Bacterial prophylaxis, if indicated
- No → Clinical response after 3-5 days?
  - Yes → 1) Cont antifungal 2) D/C other abx 3) Bacterial prophylaxis, if indicated
  - No → 1) D/C antifungal 2) Cont cefepime 3) Additional fever work-up 4) Transplant ID consult?

[1] If at any point in the algorithm patient becomes unstable and needs ICU-level care, return to this step.

[2] Considerations for anaerobic coverage and addition of metronidazole to cefepime
1) Intra-abdominal infection
2) Typhilitis

[3] If recent bloodstream infection with a retained central line, antibiotic coverage should include an agent active against the prior blood culture isolate. In patients with recent (< 90 days) clinical cultures with drug-resistant organisms, empirical therapy should typically include coverage for these organisms.

[4] Refer to the UCSF Adult Beta-lactam Allergy Guideline if listed allergy is present

[5] Patients on renal replacement therapy are at risk for cefepime neurotoxicity. Pay attention to appropriate dosing. Piperacillin/tazobactam is an alternative.

[6] Consideration of MRSA infection:
1) Bacterial pneumonia
2) Skin and soft tissue infection
3) Evidence of central line infection
4) Recent systemic MRSA infection

[7] Considerations for candidemia:
1) Intra-abdominal procedure
2) TPN
3) >7 days broad spectrum abx
4) Long-term central line
5) Candida colonization

[8] If cultures positive with a suspected pathogen, antibiotics to be targeted at that organism. If not needed for treatment of recovered pathogen, cefepime should be stopped and bacterial prophylaxis restarted.

If clinical syndrome consistent with Cdiff:
1) Treat per UCSF Cdiff guidelines
2) D/C all other empiric antibiotics as soon as possible

[9] For Step 4, fungal work-up/Tx, please see full SOP