# Guidelines to Management of Febrile Neutropenia

DEFINITION: Temperature greater than 100.5° in a patient with an absolute neutrophil count of less than 500 (ANC includes bands) or an ANC <1000 with expected further drop related to proximity of chemotherapy

APPROACH: Culture of the blood (including through all ports of indwelling central catheter) urine and other sites (skin, sputum, CSF, stool) as indicated by symptoms and signs.

Categorize the patient as high or low risk based on the following considerations:

HIGH RISK: ANC less than 100, short interval since chemotherapy, signs of septic shock, co-morbid problems (diabetes, steroids, cardiopulmonary disease), organ specific infection (i.e. pneumonia, typhlitis).

TREATMENT:

1. Granulocyte colony stimulating factor 5µg/kg subcutaneous daily until the ANC is greater than 1500.
2. Double bacteriacidal antibiotic coverage with extended spectrum penicillin or cephalosporin and an aminoglycoside (gentamicin). Add vancomycin only if obvious central catheter tunnel infection, severe mucositis or proven previous MRSA infection. Other acceptable doublets include a quinolone plus an anti-pseudomonal penicillin
3. Add Flagyl for suspected typhlitis or abdominal source of infection

LOW RISK: ANC greater than 100, short nadir expected, no hemodynamic problems and no co-morbid conditions, no obvious specific infection.

TREATMENT:

1. No GCSF.
2. Single agent antibiotic coverage with either ceftazidime 1 gm intravenous q8h or imipenem 500 mg. intravenously q6h cefepime 2 gm IV q 8h or piperacillin/tazobactam 4.5 gms IV q6h ( CrCl >40) following clinical signs and symptoms closely.
3. You may discontinue intravenous antibiotics and switch to specific oral antibiotics if bacteria are cultured or Augmentin and Cipro, if cultures are negative, to complete a 7 to 10 day course of therapy when the ANC is greater than 1000.

SPECIFIC SITUATIONS: There is an occasional patient with low-grade fever (Temp. less than 102) who are clinically not ill and who have an ANC greater than 250 but less than 500. In selected patients who are reliable and can return quickly to the hospital if they became ill, an oral program of Ciprofloxin and Augmentin is a reasonable approach to management. Remember to always err on the side of caution and overtreatment.

In patients with negative cultures who are unresponsive to antibiotics after 48 to 72 hours, empiric antifungal therapy with itraconazole, voriconazole caspofungin or Amphotericin B should be considered. In high risk patients – (leukemia, lymphoma, on steroids or cyclosporin) earlier consideration for institution of antifungal treatment is appropriate.

Remember that even in the face of positive cultures broad spectrum anti-microbial therapy should be continued until the ANC is greater than 1000. At that time the patient can then be switched to a narrowed spectrum antibiotic to treat the cultured organism.