DukeMedicine

Division of Cellular Therapy

DOCUMENT NUMBER: ABMT-GEN-013

DOCUMENT TITLE:

Evaluation and Therapy of Neutropenic Fever

DOCUMENT NOTES:

Document Information

Revision: 06	**Vault:** ABMT-General-rel
Status: Release	**Document Type:** General

Date Information

Creation Date: 08 Mar 2019	**Release Date:** 01 Apr 2019
Effective Date: 01 Apr 2019	**Expiration Date:**

Control Information

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Previous Number: ABMT-GEN-013 Rev 05	**Change Number:** ABMT-CCR-245

ABMT-GEN-013
EVALUATION AND THERAPY OF NEUTROPENIC FEVER

1 PURPOSE

1.1 To establish appropriate guidelines for the initial evaluation and treatment of patients with fever and neutropenia following chemotherapy given in preparation for stem cell mobilization or transplantation.

2 INTRODUCTION

2.1 Patients receiving chemotherapy resulting in neutropenia are at increased risk of developing infectious complications. Bacterial infections are of primary concern; however, fungal infections may arise in patients with prolonged neutropenia.

3 SCOPEAND RESPONSIBILITY

3.1 Physicians, advanced practice providers, and nurses are responsible for the care of the Adult Blood and Marrow Transplant (ABMT) recipient and should adhere to the guidelines set forth in this procedure. Providers will be responsible for the management of these patients and the nursing staff will carry out orders written and ensure ongoing assessments.

4 DEFINITIONS/ACRONYMS

4.1 ABMT Adult Blood and Marrow Transplant

4.2 Neutropenia is defined as a neutrophil count of <500/mm3 or <1000/mm3 with a predicted decline to 500/mm3.

4.3 Fever is defined as a single oral temperature of 100.5°F (38.0C).

4.4 VRE Vancomycin Resistant Enterococcus

5 MATERIALS

5.1 NA

6 EQUIPMENT

6.1 NA

7 SAFETY

7.1 NA

8 PROCEDURE

8.1 Initial Evaluation: Physical examination will be performed to look for a possible source of fever.

8.1.1 Two blood cultures (ideally 1 central and 1 peripheral) and a urine culture will be obtained.

8.1.2 Culture of any lesions or diarrheal stool, if present and suspected to be infectious, will be obtained.

8.1.3 Chest radiograph will be obtained unless performed within the preceding 24 hours.

8.1.4 Complete blood counts and serum chemistries, including electrolytes, creatinine, and liver function tests will be obtained within 24 hours before or after development of fever.

8.1.5 Other studies will be obtained based on the individual clinical situation.

8.2 If not already hospitalized, the patient may be admitted to the hospital for evaluation and treatment. Evaluation and treatment may be undertaken in the clinic, if appropriate.

8.3 Empirical administration of broad-spectrum antibiotics will begin within 30 minutes (after blood cultures have been obtained), but no later than 2 hours following first fever.

8.3.1 For outpatients, the first line regimen will be cefepime plus vancomycin at an appropriately adjusted based on renal function. Daptomycin may be given if patient has known VRE colonization.

8.3.2 For inpatients, the initial regimen will be cefepime (unless contraindicated) with vancomycin at an appropriately adjusted based on renal function). Daptomycin may be given if patient has known VRE colonization.

8.3.3 Antibiotic use will be reevaluated daily based on culture and radiographic results and the patient's clinical status. If the patient is allergic to cephalosporins, substitute with aztreonam. Doses of each of the above antibiotics must be adjusted for renal dysfunction. Approval by the Infectious Disease Service is required for the use of imipenem and meropenem.

8.4 If the patient remains febrile after 48 hours on broad-spectrum antibiotics, vancomycin at an appropriate dose based on weight and renal function) should be considered if not already added. Vancomycin may be added to the initial regimen if patient exhibits obvious signs or symptoms of a line infection or if the patient is septic.

8.5 If fever persists 72-96 hours after broad-spectrum antibiotics are initiated, then other approved antibiotics should be initiated (or appropriate dosing schedule based on weight and renal function). These may include; imipenem, meropenem, piperacillin/tazobactam, or an antipseudomonal penicillin with an aminoglycoside given at appropriate doses (for broad gram negative coverage for patients that are not allergic to penicillin.)

8.6 If fever persists 96-120 hours after broad-spectrum antibiotics are initiated, then ABMT physicians and advanced practice providers will treat on a case by case basis.

8.7 **Reportable conditions**: Intolerance or allergy to therapeutic regimen; persistent fever, hypotension, positive cultures, or signs and symptoms of infection.

9 RELATED DOCUMENTS/FORMS

9.1 Alp, S., & Akova, M. (2013). Management of febrile neutropenia in the era of bacterial resistance. *Therapeutic advances in infectious disease*, *1*(1), 37-43.

9.2 Freifeld, A. G., Bow, E. J., Sepkowitz, K. A., Boeckh, M. J., Ito, J. I., Mullen, C. A., ... & Wingard, J. R. (2011). Clinical practice guideline for the use of antimicrobial agents in neutropenic patients with cancer: 2010 update by the Infectious Diseases Society of America. *Clinical infectious diseases*, *52*(4), e56-e93.

9.3 Reference DUH Guidelines for Empiric Inpatient Treatment of Cancer Related Neutropenic Fever in Adults

9.3.1 https://assets.customid.org/DUH%20GuidelinesforEmpiricTreatmentofNeutropenicFever%20P%26T%20approved%20August%202014_4.pdf

10 REFERENCES

10.1 www.nccn.org

10.2 Written by Ashley Morris Engemann, PharmD, BCPS, BCOP

10.3 Approved by BMT Review Committee

11 REVISION HISTORY

Revision No.	Author	Description of Change(s)
06	J. Frith	3.1 added Adult Blood and Marrow 4.1 defined ABMT Removed dosage from antibiotics in 8.3 and 8.4 Added 9.3 Reference

Signature Manifest

Document Number: ABMT-GEN-013 **Revision:** 06

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ABMT-GEN-013 Evaluation and Therapy of Neutropenic Fever

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Document Release

Name/Signature	Title	Date	Meaning/Reason
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