Assessment of the time to first antibiotic dose for patients presenting with febrile neutropenia in the emergency department

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BACKGROUND

- Fever is often the first sign of an underlying infection in patients undergoing cytotoxic chemotherapy.
- This complication of cytotoxic chemotherapy carries a high mortality rate, especially for patients with multiple comorbidities.
- Due to increased mortality in these patients, various guidelines have endorsed prompt delivery of broad spectrum antibiotics after presentation.
- Many of these patients present to the Emergency Department after detecting a fever at home.
- Several factors, including time to triage, inconsistent triage of patients with febrile neutropenia, and logistic barriers to care make the prompt initiation of broad spectrum antibiotics difficult in the Emergency Department.
- By determining what organizational barriers exist in our institute, we can develop a process to provide the correct antibiotics quickly and reduce mortality and length of stay for this patient population.

OBJECTIVE

- To determine compliance to National Comprehensive Cancer Network (NCCN) and Infectious Disease Society of America (IDSA) febrile neutropenia guidelines in regard to first antibiotic dose, appropriate empiric antibiotic selection, and appropriate blood collection for culture results.

METHODS

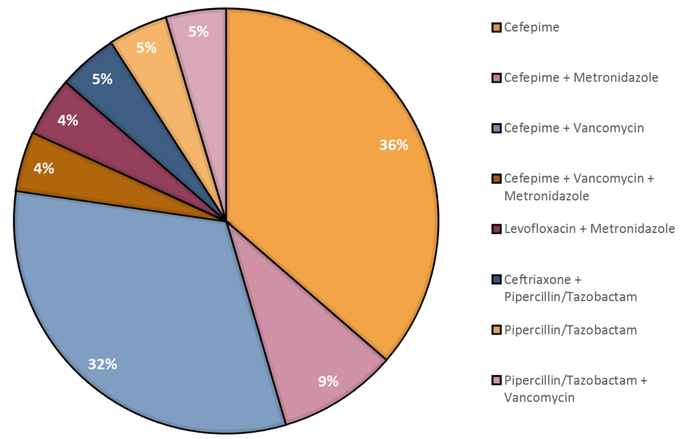
- Retrospective, cross-sectional study
- Patients from November 2019 to August 2020 presenting to the CHI Memorial Emergency Department with febrile neutropenia were evaluated
- Inclusion criteria: age greater than 18, received cytotoxic chemotherapy within the last thirty days
- Exclusion criteria: direct admission, febrile neutropenia attributed to other causes, subjective fever not confirmed upon triage
- Patients were identified using ICD-10 diagnosis codes specific for febrile neutropenia.

RESULTS

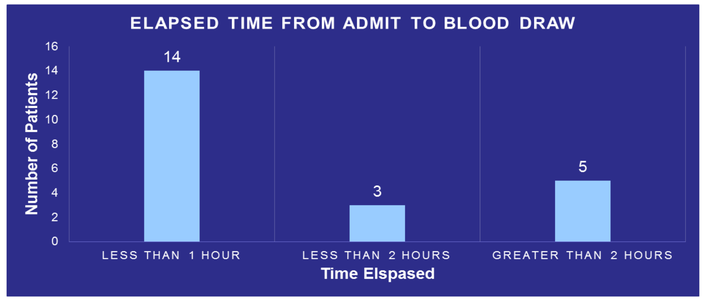
35 admissions for Febrile Neutropenia during study → 3 patients excluded with Febrile Neutropenia attributed to a cause other than chemotherapy → 10 Patients excluded due to subjective fever not confirmed at admission → 22 Patients included

Category	N	%
Gender		
Female	10	45%
Male	12	54%
Age (in years)		
40—50	2	9%
50—60	1	4%
60—70	6	27%
70—80	11	50%
80—90	2	9%
Cancer Type		
AML	4	18%
APL	1	4%
Breast Cancer	6	27%
Lung Cancer	3	13%
Lymphoma	4	18%
Myelodysplastic Syndrome	3	13%
Neuroendocrine Carcinoma	1	4%

FIRST ANTIBIOTICS ADMINISTERED



RESULTS (cont.)



Time To First Antibiotic Administration		
Average Time to First Antibiotic Administration	3 hours, 34 minutes	Patients that received antibiotics within 90 minutes = 4 (18%)
Median Time to First Antibiotic Administration	2 hours, 19 minutes	

DISCUSSION

- Labs were drawn within one hour for 63% of patients. Only 18% of patients received antibiotics within 90 minutes of presentation.
- The most common antibiotic used for the empiric treatment of febrile neutropenia was cefepime.
- Most patients received appropriate broad-spectrum antibiotics. One patient received ceftriaxone & pipercillin/tazobactam in the ED, which was later changed to cefepime & vancomycin upon admission.
- Opportunity exists for prompt initiation of laboratory blood draws and delivery of broad-spectrum antibiotics for patients presenting with febrile neutropenia in the emergency department.

DISCLOSURE PANEL

The authors of this presentation have the following information regarding possible financial or personal relationships with commercial entities that have a direct or indirect interest in the subject matter of this presentation to disclose:

- **Kristin Liveris**: Nothing to disclose
- **Nicholas Lockhart**: Nothing to disclose