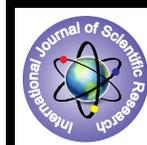


A Study of Clinical Profile of Fever Among Neutropenic Patients



Medical Science

KEYWORDS : Neutropenia, Malignancy, Fever

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ABSTRACT

A descriptive case series study was carried out at a Tertiary care hospital to know the clinical profile of fever among neutropenic patients. Patients with these inclusion criteria attending this hospital during the study period were study subjects and patients who did not give their consent and seriously ill were excluded from the study. Totally 74 patients were considered for the study and it was observed the signs and symptoms related to Respiratory system was more common and Malignancies were major diagnosis among febrile patients with neutropenia.

Introduction:

Fever in neutropenic patients is a common problem encountered in clinical settings like leukemias [commonly AML, ALL, CML] and plasma cell dyscrasias, multiple myeloma, patients undergoing organ or bone marrow transplantation, those with bone marrow failure and in certain infections like enteric fever and HIV infection. Causes can be infectious and non-infectious.

Non-infectious causes include drugs like chemotherapeutic agents (for example cyclophosphamide, methotrexate), chloramphenicol, penicillins, sulphonamides, carbamazepine, clozapine etc, certain cancers themselves such as Hodgkin's disease and lymphoma, vasculitis, transfusion reactions and graft versus host disease. Among infectious causes, primary infections related to central venous catheters and secondary infections related to respiratory tract [like pneumonia], surgical sites, genitourinary tract, intra-abdominal cavity and non surgical skin abscesses are common.⁽¹⁾

Infections are a major cause of morbidity and mortality in cancer patients. The risk of infections is principally related to the intensity and duration of the immune suppressive chemotherapy. In the 1980's there was a shift in the relative prevalence of specific pathogens afflicting patients with cancer. Whereas in the 1960's and 1970's Gram negative bacterial pathogens [Enterobacteriaceae and pseudomonas aeruginosa] were the principal cause of bacteremia, in 1980's and 1990's Gram positive bacterial pathogens became predominant⁽²⁾. So this study is an attempt to know the clinical profile of neutropenic patients.

Methodology:

The study material was collected from the wards and ICUs of the hospitals of M. S. Ramaiah Medical College, Bangalore. 74 patients, who had episodes of fever and neutropenia on admission or anytime during hospital stay, were studied during a period of two years.

A detailed history was taken and physical examination was done in all patients. They were subjected to appropriate investigations to find out the cause of fever. These included complete blood counts; urine microscopy, chest x-ray & blood smear for malarial parasites. Blood -sputum stool -urine and access device cultures done if clinically indicated. Cultures from any other suspicious/focal lesions were taken. CT scan of the chest, abdomen & pelvis were done if clinically indicated. Elisa for HIV was done if considered relevant.

Results:

In this study there were 74 patients with febrile neutropenia. Among study subjects, 58.1% were male and 41.9% were females.

Table.no1: Distribution of study subjects based on complaints

Complaints	Frequency	Percentage
Fatigue	21	28.37
Cough	18	24.32
Vomiting	10	13.51
Loose stools	09	12.16
Breathlessness	08	10.81
Pain abdomen	05	06.75
Throat pain	03	04.05
Bleeding gums	02	02.70
Dysuria	02	02.70
Convulsions	01	01.35
Epistaxis	01	01.35
Jaundice	01	01.35

The most common presentation was fatigue followed by cough, vomiting and loose stools. Breathlessness and pain abdomen were seen among 08 and 05 patients respectively

Table.no2: Distribution of study subjects based on clinical presentation

Clinical signs	Frequency	Percentage
Lymphadenopathy	37	50.00
Chest crepitations	07	09.45
Oral mucositis	05	06.75
Tender abdomen	04	05.40
Infected chemoport	03	04.05
Infected hemorrhagic bullae over tongue	03	04.05
Hepatomegaly	02	02.70
Splenomegaly	02	02.70
Icterus	01	01.35

Lymphadenopathy was the most common clinical sign present among neutropenic patients. Chest crepitations, oral mucositis and tender abdomen were other secondary findings observed among patients

Table.no3: Distribution of study subjects based on diagnosis

Diagnosis	Frequency	Percentage
Hematological malignancies	41	55.40
Solid tumours	28	37.83
Metastasis of unknown origin	02	2.70

Sepsis	01	1.35
Pancreatitis	01	1.35
HIV	01	1.35
Total	74	100

Investigations revealed that most common diagnosis was Hematological malignancies (55.4%) followed by Solid tumours (37.8%), Metastasis (2.7%), Sepsis (1.3%), Pancreatitis (1.3%) and HIV (1.3%)

Discussion:

This study included 74 febrile patients with neutropenia. The explanation for fever being considered as the risk factor for neutropenia severity is because patient who suffered from severe neutropenia, will have the risk of fever rising by 10% each day as long as ANC remain ≤ 500 cell/ μ l. In addition, severe neutropenic patients will be under serious risk of infection i.e. bacterial as a primary infection or secondarily by fungal infection which lead to fever higher than 38.3°C (3). It is known that solid cancer patients are under the risk of microbiological infection by 50%-60% hence will result in the occurrence of fever. So as the severity of neutropenia increase, patients immunity will decrease and thus the severity of infection will also increase which will lead to fever. Also the most common characteristic obtained during severe neutropenia is fever and the presence of fatigue or mucositis or pneumonia^(4,5,3) So all these explanations shows that fever is one of the main risk factors associated with severe neutropenia, but not with onset of it.

As it was observed in this study that the majority of the patients were diagnosed to have malignancy and Mucositis occurred as a result of damages occurring in the mouth and oropharynx because of intensive chemotherapy effect⁽⁶⁾. The injury to the mucosal barrier of the gastro intestinal tract can lead to diarrhea as well as urinary tract infection (UTI) that results from severe gram-negative infection which occur because of the chemotherapy beside the damage that occur to the kidneys⁽⁶⁾. Chest infection in neutropenic patients are characterized by sputum production and cough⁽⁶⁾

Both of fever and clinical signs when present especially within severe neutropenic patients mostly they caused by infection specifically by bacterial infection^(7,8,9)

Conclusion:

In conclusion, hematological malignancies were most commonly associated with febrile neutropenia and clinically respiratory system was affected mainly

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