# Chapter 31

# FEBRILE NEUTROPENIA IN CANCER PATIENTS

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Myelosuppression associated with chemotherapy, and neutropenia is a serious side effect that can be life threatening.The most serious consequence of neutropenia is febrile neutopenia, which leads to morbidity and mortality and requires admission to hospital and broad spectrum antibiotic treatment. In febrile neutropenia(FEN), neutropenia is a major risk factor for various types of infection. Initiating antibiotic treatment without delay is of crucial importance. The choice of antibiotics varies,depending on clinical picture, previous culture results, antibiogram and especially antibiotic resistance. In this chapter, definition of febrile neutropenia, evaluation of patient with febrile neutropenia, determination of risk score, the use of colony stimulating factor and treatment of febrile neutropenia will be adressed.

## FEBRILE NEUTROPENIA

Febrile Neutropenia is defined as a body temperature over 38.3°C at a single oral measurement or its being over 38 °C for one hour and an absolute neutrophil count(ANC) under 500 cells/mL or expectation that ANC will fall under 500 cells/mLwithin 48 hours (1).Neutropenia induced by chemotherapy leads to morbidity and mortality and the modification of chemotherapy dose in cancer patients (2). FEN may occur at the rate of about 10-50% in solid tumors and over 80%in hematological tumors (3).

Agent may be isolated only in 40-50% of neutropenic patients. Bacteremia occurs in 10%-30% of cases (4). Therefore, rapid institution of antibiotic treatment is important. The source of infection is usually intestinal sistem, lung and skin(5). In neutropenic patients, agents are often bacteria and fungi and viral and parasitic agents, which occur less frequently, arise with enhancement of myelosupression (6).

Gram negative bacteria, particularly Enterobacteriaceae (including Escherichia coli, Klebsiella species, and Enterobacterspecies) and Pseudomonas aeruginosa

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## MONITORIZATION AND TREATMENT PROCESS

When patient is afebrile and the leucocyte count is >500 neutrophils/$mm^3$at 48 hours, oral antibiotic treatment may be started in low risk patient. In high risk patient, if the causative agent has not been detected and combined treatment is used, monotherapy with carbapenem or antipseudomal penicilin is recommended.

If the patient is still febrile at 48 hours, clinical condition is evaluated. If clinical condition is stable, empiric treatment used at onset is continued. If it is instable, treatment spectrum is extended (6).

In conclusion; Febrile neutropenia is an oncological emergency condition that requires immediate detection and treatment. In its treatment, the initiation of empiric antibiotic treatment may significantly decrease morbidity and mortality.

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**ABBREVIATIONS:**

ANC: Absolute neutrophil count

CMV: Cytomegalovirus

CT: Computerized tomography

FEN: Febrile neutropenia

G-CSF: Granulocyte stimulant factor

HRCT: High resolution computerized tomography

MASCC: Multinational Association for Supportive Care in Cancer

MGF: Myeloid growth factor

NCCN: The National Comprehensive Cancer Network