



## Case Report: Febrile Neutropenia in a Patient with Carcinoma of Larynx

Authors

**B. Sunil Kumar Nayak<sup>1</sup>, G. Divya Sri<sup>1</sup>, K. Abhinay<sup>1</sup>, Dr K. Srinath<sup>2</sup> Pharm-D,  
Dr M.G Irfan Ahmed Khan<sup>3</sup> PHARM-D**

<sup>1</sup>Interns, Department of Clinical Pharmacy, Vaageswari College of Pharmacy, Karimnagar, Telangana state, India

<sup>2</sup>Assistant Professor/Preceptor, Vaageswari College of Pharmacy, Karimnagar, Telangana state, India

<sup>3</sup>Oncology/Hematology-Clinical Pharmacist/Preceptor, Chalmeda Anand Rao Institute of Medical Sciences (CAIMS), Cancer Hospital and Research Institute, Karimnagar, Telangana state, India

### Abstract

*Febrile neutropenia and myelosuppression is one of the serious adverse effect or the toxic effect of most anti-cancer drugs. When these drugs are prescribed, myelosuppression is seen by which pancytopenia (where all blood cells are decreased) is seen. Granulocyte colony stimulating factors are given in order to regain the cell counts. In this case report we discuss about the patient who has diagnosed with carcinoma of larynx experienced the pancytopenia and how he was managed.*

**Background:** *Febrile neutropenia is one of the most serious complications of the cancer chemotherapy drugs. Febrile neutropenia is a life threatening condition where the neutrophil count gets lowered which leads to enhance some of the factors associated with morbidity, mortality and financial costs of the patients which are associated with supportive care. The colony stimulating factor is helpful in preventing the adverse effects of anti-cancer drugs such as neutropenia who receives the chemotherapy both in curative patients and palliative care patients.*

**Keywords:** *Febrile neutropenia, colony stimulating factors, filgrastim, myelosuppression, meropenem.*

### Case Report

The following case report describes the case of 65 year old male who is regular alcoholic and a chronic smoker (1pack/day) since 40 years was diagnosed with carcinoma of larynx 6 months ago and underwent the radiation of 5fx per week and he receives a total of 33fx/66gy.

Later, he presented the complaints of dysphasia and pain during swallowing food. Patient had a reoccurrence of the symptoms. Then the patient underwent certain pathologic diagnosis.

Histopathological examination showed that he had the poorly differentiated squamous cell carcinoma and CECT showed the malignant lesion in left pyriform sinus, left aryepiglottic fold and posterior pharyngeal wall with extensions and infiltrations which suggests the METASTASIS. Patient was started on palliative chemotherapy with paclitaxel and carboplatin. The dose of drugs are given according to his BMI, paclitaxel of dose 260mg and carboplatin (dose calculated by AUC) 450mg was given and cycled for every 21 days.

Every time patient visits the hospital histopathological tests are done (CBP, LFT's, and RFT's) in order to check any abnormalities or any toxicity caused due to chemotherapeutic drugs. All the parameters remain normal till the cycle 2. When the patient visited the hospital for the cycle 3, his neutrophil count was slightly decreased (N=37%). Patient had received the cycle 3 and cycle 4 regimens normally without any severe complications.

Soon after the cycle 4 administration of drugs i.e., 10 days after the patient has hospitalized with the complaints of weakness, fever (102 F) since 4 days, nausea 3 to 4 episodes. Histopathological tests are done which reveals that patient had a decreased levels of neutrophils (N=28%), decreased WBC count (1200 cells/cumm). The absolute neutrophilic count is 336 which is less than 500 indicates the high risk of causing infections which may lead to fatal conditions. Platelets (90000 cells/cumm) and RBC (3 mill.cells/cumm) was also decreased along with WBC which suggests the condition known as pancytopenia, the most common symptom of myelosuppression.

Patient was shifted to intensive care unit and given the following treatment, filgrastim, caripill, meropenem, acetaminophen, ondansetron and 1 pint whole blood transfusion along with supporting medications. This medication was continued for 5 days. Patient was discharged from hospital after normalizing all the blood cell count.

The patient was advised to drink plenty of water and to avoid all the raw foods as there is a high risk of causing infections.

### Discussion

Neutropenia is a condition where very low concentrations of neutrophilic granulocytes are seen. Neutrophils are the high circulating white blood cells which serve as the first line of organism defense against infection<sup>[1]</sup>. When this condition is associated with fever, it is referred as febrile neutropenia. The cancer patients with chemotherapy experience the condition where

their bone marrow gets suppressed. Febrile neutropenia is relatively screened in cancer patients with chemotherapy. It is diagnosed by the physical observation for fever and CBP test to screen FB<sup>[2]</sup>.

The anti-cancer drugs have the myelosuppression as its toxic effects. Drugs such as cyclophosphamide, actinomycin, vinblastine, paclitaxel, cisplatin, carboplatin, and fluorouracil show this effect. The toxic effects may be seen with the single or in combination of drugs<sup>[3]</sup>.

In this case report, the patient had given combination of drugs (paclitaxel & carboplatin) which causes the myelosuppression. As treatment for toxic effects, patient had received the colony stimulating factors (CSF's), antibiotics, antipyretics along with supportive medications.

Official guidelines from Europe and USA suggests that primary G-CSF's are given as prophylaxis when the overall risk of febrile neutropenia due to regimen and patient factors is > 20%<sup>[4]</sup>. G-CSF prophylaxis has also reported to decrease the non-hematological toxicities such as anorexia, stomatitis, mucositis and diarrhea.

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