

CEFUROXIME INDUCED LEUKOPENIA: CASE REPORT

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ABSTRACT

Cefuroxime is one of the most commonly used antibiotic agent, which has action against gram positive and gram-negative organisms. Several adverse effects are reported with cefuroxime. In this report, we discuss one of the rare adverse effects of cefuroxime - Leukopenia. Cases of cefuroxime induced Leukopenia are rarely reported. The use of Cefuroxime is increasing worldwide, hence these life - threatening adverse effects of Cefuroxime should be borne in mind.

KEYWORDS: Cefuroxime, Leukopenia, Gram Positive Organisms, Gram Negative Organisms.

INTRODUCTION

Cefuroxime is a broad – spectrum cephalosporin (second generation) antibiotic resistant to beta – lactamase. It has been indicated against both gram – negative and gram – positive organisms, gonorrhea and hemophilic. Cefuroxime addresses different infections including, upper respiratory tract infections, urinary tract infections, gonorrhea, early Lyme disease, acute bacterial otitis media and skin infections like impetigo². It is generally well tolerated and effective as mono-therapy with no nephrotoxicity reported at usual dosages. When given as intramuscular or intravenous injection cefuroxime is effective against a wide variety of infections caused by Gram – positive or Gram – negative aerobes, but not effective against *Pseudomonas aeruginosa* or *B. fragilis*. Cefuroxime requires dose modification in presence of several renal failure. Leukopenia is a rare adverse effect of cefuroxime that can be life threatening. Leukopenia refers to a decrease of leukocytes (WBC) in the body.^[3]

Normal Range: 4000-11000/ μ L.^[1]

Drug induced Leukopenia is usually due to suppression of myeloid progenitor cells.

CASE REPORT

A 49 year old female patient with history of Hypothyroidism (8 Years), Uterine fibroids (2 years), Umbilical Hernia - S/P Hernioplasty (13 years ago) was presented to the emergency department of our hospital with supraumbilical defect 3x2 cm with fatty hernia of linea alba with transverse colon as content, Umbilical and Infraumbilical defect with omentum as content for which the patient underwent Rives Stoppas Repair under GA and Epidural on 19/10/2022. Inj. Cefuroxime 1.5 gm was given as surgical prophylaxis. Following surgery, patient was started on Inj. Cefuroxime 1.5 gm Q8H. Her laboratory parameters which were normal before initiating these antibiotics showed a decreased trend of Total Leukocyte Count after initiating them. Cefuroxime was suspected to be the cause of leukopenia. Decision was made to stop her drug therapy following which her laboratory parameters started to increase and was finally restored to normal range.

PARAMETERS	BEFORE INITIATING	AFTER INITIATING	NORMAL RANGE
TOTAL LEUKOCYTE COUNT	5400/ μ L	3600/ μ L	4000-11000/ μ L

DISCUSSION

Cefuroxime is a broad - spectrum cephalosporin (second generation) antibiotic resistant to beta - lactamase. The

beta-lactam antibiotics are bactericidal agents that interrupt bacterial cell wall formation as a result of covalent binding to essential penicillin - binding proteins

(PBPs) and enzymes responsible for peptidoglycan cross linking in both Gram - Negative and Gram - Positive bacteria, which is the terminal step in peptidoglycan synthesis.

Leukopenia is a rare adverse effect of cefuroxime. There are only 136 reports of cefuroxime induced leukopenia in Viggi-Access till date. The typical underlying mechanism of drug induced leukopenia is suppression of myeloid progenitor cells.

When a particular medication is suspected as a cause of leukopenia, it should be discontinued promptly. The decision will be influenced by the severity of leukopenia, clinical symptoms and the necessity of medication.

CONCLUSION

This case presents a unique incidence of leukopenia caused by cefuroxime. Thus, if a patient on cefuroxime therapy develops leukopenia, the drug can be suspected as the possible offending agent ruling out other possible causes of leukopenia in the patient.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

ABBREVIATIONS

ADR: Adverse Drug Reaction

S/P: Status Post

GA: General Anesthesia

BD: Twice daily

WBC: White Blood Cells

Q8H: Every Eighth Hourly

PBPs: Penicillin Binding Proteins

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