

Case Report



Cefotaxime Induced Pyrexia in a Pediatric Patient with First Degree Burns: A Case Report

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ABSTRACT

Drug induced fever is defined as an abnormal elevation of body temperature. Virtually, all drugs are known to cause fever among which antimicrobials holds highest reports. Early recognition of such an event could prevent prolonged hospitalization and complications in pediatrics like febrile seizures. A one and half year-old pediatric child was admitted in the pediatric ward due to 20% superficial burns. She was administered with parenteral cefotaxime which led to the development of fever. Discontinuation of this drug led to a gradual fall in temperature and it began to rise again on re-administration. There was an improvement in the patient condition upon withdrawal of the drug. The child's scalds over her limbs had healed by the time of discharge. Drug induced fever is managed by the discontinuation of the drug responsible for temperature elevation. This case report projects the incidence of cefotaxime induced drug fever along with its management.

Keywords: Cefotaxime, Drug induced fever, Drug discontinuation, Dechallenge- Rechallenge, Pediatrics.

INTRODUCTION

Fever is an imbalance between the production and dissipation of heat.¹ The distinguishing feature of this condition, the temperature begins to drop when the offending agent is discontinued.² Children susceptible to drug induced fever accounts for nearly 16%.³ Parenteral cefotaxime is accountable for 15% of the drug fevers.⁴ Bacterial cell wall destruction owing to the administration of anti- microbial agents releases pyrogenic endotoxins which is responsible for altered thermoregulation.⁵ Drug induced fever is often left undiagnosed due to the underlying conditions which can mask the symptoms. However there is an increased need to identify and report such incidents to prevent unnecessary complications and prolonged hospitalization.

Here, we report a pediatric case of cefotaxime induced drug fever in a patient with 20% superficial burns, which was proved upon dechallenge and rechallenge. Hence specifies the importance of early identification of such adverse events.

Case Description

A one and half year old female child was brought to the pediatric ward of a secondary care hospital on December 2018; with complaints of scalds over both lower limbs and abdomen (Fig.1 represents anterior view and Fig.2 represents posterior side- shaded regions).

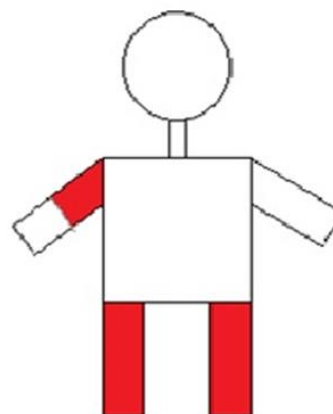


Figure 1: Region of burns on the anterior side

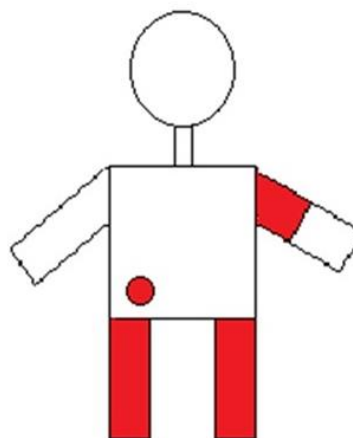


Figure 2: Region of burns on the posterior side

The reason for scalds was due to an accidental fall into a cauldron. She was administered with Xylocaine jelly, Syr.



Ibuprofen/ paracetamol 2.5mL thrice daily, Syr. Amoxicillin/ clavunilic acid 3mL and Syr. Triclofos 2.5mL twice daily at a private care hospital. She weighed 8kg and on examination her vitals were found to be pulse rate at 154 beats per min, temperature at 98.4⁰ F, respiratory sounds at 38 breaths per min and 90% SPO₂ in room air. It was stated that the patient had no history of any substantial medical condition or allergies and she was immunized up to her age. She was diagnosed with 20% burns first degree which was present superficially. The necessary lab investigations were conducted and reported in Table 1. There were no significant changes in the blood parameters except for blood urea level which was found to be elevated in this patient.

Table 1: Clinical Laboratory Test

Lab Parameter	Observed Range	Normal Range
Hemoglobin	143 g/L	105–140 g/L
Total count	15.9x10 ⁹ cells/L	5.0–14.5x10 ⁹ cells/L
Polymorphs	5900 x10 ⁶ /L	3700–7100 x10 ⁶ /L
Lymphocytes	3400 x10 ⁶ /L	1700–6700 x10 ⁶ /L
Monocytes	700 x10 ⁶ /L	300-500 x10 ⁶ /L
Platelet count	393x10 ⁹ /L	150-400x10 ⁹ /L
RBC	5.66x10 ¹² /L	3.7–5.3x10 ¹² /L
PCV	0.423%	0.33–0.39%
MCV	74.7 fL	76.0–90.0 fL
MCH	25.3 pg/cell	23.0–31.0 pg/cell
MCHC	33.8 g/dL	30.0–34.0 g/dL
RBS	5.439 mmol/L	3.88-6.66 mmol/L
Blood Urea	39 mg/dL	5–25 mg/dL
Sr. Cr	44.21μmol/L	10.61–93.73μmol/L

Red Blood Cell (RBC), Packed Cell Volume (PCV), Mean Cell Volume (MCV), Mean Cell Hemoglobin (MCH), Mean Cell Hemoglobin Concentration (MCHC), Random Blood Sugar (RBS), Serum Creatinine (Sr. Cr.)

She was treated with Inj. Cefotaxime 500mg thrice daily, Inj. Metronidazole 250mg thrice daily, Inj. Ranitidine 75mg twice daily (2- 4mg/kg/day divided q6-8hr), Inj. Chlorpheniramine maleate 22.75mg twice daily (0.0875mg/kg *4 times/day), Syr. Paracetamol 5ml- 125mg thrice daily (75 mg/kg/day) and Silver Sulphadiazine ointment 1% (1% qDay- q12hr). IV fluids and nasal oxygen was also administered to the patient on admission. There was an improvement in the patient's wounds on days 2 and 3; however her body temperature began to rise over 99⁰F. All other vitals were found to be normal in the following days. On day 4, parenteral administration of antibiotics was ceased and there was a gradual fall in her body temperature to 98.8⁰F. Inj. Cefotaxime was readministered on day 5 and the patient developed fever illness. The fluctuation in body temperature is depicted in Fig.3, which shows a rise in temperature to 100⁰F on day 7, 101.4⁰F on day 8.

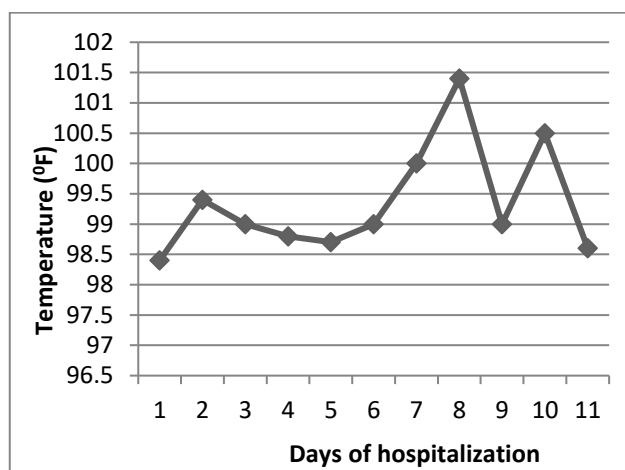


Figure 3: Graph representing the fluctuations in body temperature during hospital stay

Physiotherapy was initiated since the patient showed complaints of decreased mobility. On day 7, Syr. Cefpodoxime 4ml twice a day (50mg/ 5ml) was started instead of parenteral antibiotics. The temperature fell to 99⁰F after cefotaxime discontinuation. The patient's general condition began to improve as she showed no signs of fever with the alternative antibiotic. The wound was healthy but sloughing was positive from day 7. Sloughing began to decrease by day 11 and the patient was discharged with papain-urea ointment.

DISCUSSION

Diagnosis of drug fever is the greatest challenge confronted by healthcare professionals. The pattern of fever is a sustained elevation followed by febrile seizures in pediatrics.^{6,7} The temperature rises over 38⁰C and comes down within 48 to 72 hours when the potential agent is withdrawn.⁸

Drug fever can be confirmed based on the results of rechallenge with the suspected drug. The opportunity for rechallenge must be looked into based on the risks and benefits with the drug. Utmost care must be taken while administering the supposed drug in pediatric patients. In this case rechallenge was performed based on the pattern of fever with this patient.⁹

There are no standard treatment guidelines for the management of drug induced fever. The foremost treatment strategy is the withdrawal of the offending agent. There is lack of evidence in the use of corticosteroids; antipyretics and tepid sponging as treatment options for drug fever.¹⁰ Other management measures include using an alternative drug or reduction in the dose of the drug responsible for inducing fever. Dose reduction might lead to reoccurrence of fever even if it is administered months later.

On detection of the adverse event, its severity is to be evaluated using Naranjo algorithm. In the above reported adverse event the causality score was 6 which indicated a probable risk of adverse event with this medication

cefotaxime. The other intervention identified was that Syr. Paracetamol was underdosed. Only 375mg/day of paracetamol was administered instead of 600mg/day (75mg/kg/day) which would have contributed to the slow declination of the patient's body temperature. Reporting of such events can enhance the knowledge on drugs that induce fever and its management. All probable signals can be reported to the FDA through MedWatch or the FDA Adverse Event Reporting Systems (FAERS).⁸

CONCLUSION

Parenteral administration of antibiotics is the most prevalent reason for drug induced fever in pediatric population. This case report elucidates the incidence of cefotaxime induced fever in a pediatric patient which was confirmed through a positive rechallenge. Patient was discharged after her burn wounds were healed. Patient's representative was counseled on providing protein rich diet since nutrition is an important aspect in the management of burns. Direct exposure of burns to sunlight is not advisable for about a year. It is important to apply total sun block in the affected area while the patient is out in the sun. Medical advice is required if the patient develops fever or the wound begins to leak. Strict hygiene has to be maintained around the burn region to prevent infections.

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Abbreviations: Inj- Injection, Syr- Syrup, I.V- Intravenous.

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