



Author Gate



Case Report

A colourful consequence: The curious case of cefdinir and iron-containing supplements interaction in pediatric otitis media treatment

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ABSTRACT

Otitis media (OM) is a common infection of the middle ear that often affects young children. Cefdinir, a third-generation cephalosporin, is commonly prescribed to effectively treat OM. However, when Cefdinir is co-administering with iron-containing formulations, it can potentially result in the appearance of bloody-coloured stool. We presented a 10-month-old male infant who was admitted to the emergency after experiencing reddish-coloured stool while on Cefdinir and a multivitamin-containing iron formulation three days prior to the visit. During the physical examination, all vital signs were normal, and blood tests revealed no abnormalities. Upon consultation with a drug information specialist, it was determined that the interaction between Cefdinir and iron was the likely cause, and parents were advised to discontinue the use of the antibiotic agent.

Keywords: Cefdinir, Bloody Stool, Infant, Iron Formulation, Drug interaction, Otitis Media.

INTRODUCTION

OM is a common infection of the middle ear that affects infants and toddlers. It is considered the second most common health concern in childhood and poses a burden on children, their families, and society.^[1] Untreated OM can lead to hearing loss in children and often requires intervention. The symptoms range from asymptomatic to fever, rubbing, tugging, holding the ear, and discharge from the ear. It is estimated that infants are more affected by OM than children due to their immature immune systems.^[2] Furthermore, evidence has shown that 23% of infants experienced OM at multiple events during their early age, and approximately 60% of children experienced OM in more than three episodes throughout their childhood.^[1]

Antibiotics have been used as the first-line therapy in the management of infectious diseases. Despite their efficacious action, clinicians are greatly concerned about their drug interactions as they can potentially hinder therapeutic outcomes and, in some cases, even threaten patient's lives.

The use of antibiotics in infants is very common, particularly in early childhood, as it can help prevent complications arising from infections. It is well-documented that immaturity of infants is considered the main reason for variations in antibiotic pharmacokinetics. Such variations must be taken into consideration when prescribing antibiotics. In the present case, we discuss a harmless yet significant drug interaction in the treatment of a clinical problem.

Case Presentation

A 10-month-old male infant (weighing 10 kg) presented at the ED with a chief complaint of reddish stool. No significant past medical history was identified, except that 3 days prior to presentation, he was evaluated by a paediatrician and diagnosed with OM and a dose of 5 ml every 12 hours of Cefdinir (125mg/5ml) was prescribed. The infant was on a multivitamin with iron and a mineral-supportive formula. Upon physical examination, the infant was afebrile with normal vital signs and was alert but fussy. A gastrointestinal examination revealed normal active bowel sounds and a soft abdomen that was non-tender and not distended. No skin rashes or anal fissures were observed. Ear examination showed slight irritation but a normal tympanic membrane. Blood tests for haemoglobin and complete blood count were within normal limits and the blood culture was negative. Upon consultation with the drug information centre, it was determined that this case was a possible drug interaction between iron and the antibiotic (Cefdinir), resulting in stool discolouration. The parents were advised to discontinue cefdinir and follow up with the paediatrician in case of OM recurrence.

DISCUSSION

The present case represents a significant, yet harmless drug interaction involving the frequently prescribed antibiotic Cefdinir. Cefdinir is an extended-spectrum, third-generation cephalosporin that is commonly used for OM. It is the preferred drug of choice in cases of penicillin resistance due to its less frequent dosing and short duration of therapy. When Cefdinir is co-administered with iron-containing products, it can produce a harmless maroon-like colour in the stool, which fades away upon discontinuation of the drug. The benign nature of this side effect can cause distress to families, confusion among physicians, and unnecessary-costly laboratory investigations. Therefore, this case emphasizes the importance of educating parents about these possible harmless side effects to prevent panic, reduce healthcare-related costs for families, and minimize unnecessary emergency department visits. To the best of our knowledge, this is the first reported observational case at Dawadmi General Hospital.

Several reports have shown that the Cefdinir-iron complex produces reddish stool.^[3-5] Most of these cases involve a similar scenario of prescribing Cefdinir while the infant is taking either a multivitamin with iron or iron-fortified formula. However, this case highlighted other iron-containing formulations, and multivitamins. Unexpectedly, healthcare providers and pharmacists are still unaware of these possible innocuous side effects. Such knowledge is important as adherence to Cefdinir therapy is essential for the treatment of OM, as untreated OM can lead to preventable hearing loss.^[6] Therefore, medication side effect awareness and patient education prior to prescribing will enhance therapeutic outcomes.

The mechanism behind the formation of bloody stool due to co-administration of Cefdinir and iron is still unknown. One report has suggested that Cefdinir or its metabolite interferes with iron in the gastrointestinal tract, preventing absorption^[7] and resulting in red-coloured stool. Furthermore, the amount of iron needed to cause a red-coloured stool is also remains unclear. A recent study indicated that even a low volume of iron present in the iron-fortified formula has resulted in a reddish-stool colour.^[8] Moreover, our case observation showed that as little as 10 mg of iron in multivitamin syrup could lead to bloody-coloured stool when used with Cefdinir antibiotics.

It is worth mentioning that tremendous effort has been focused on studying and educating parents about OM; however, none of these reports have identified or explained the significant drug interaction between Cefdinir and iron-containing formulations or supplements.^[9-11] Increasing parent's awareness will significantly contribute to reducing emergency visits and cutting healthcare costs. A recent study showed a limited awareness of the potential side effects of antibiotic use among patients.^[10] Therefore, providing proper education on the expected side effects of using both Cefdinir and iron-containing products is a must and requires awareness among healthcare providers and parents.

CONCLUSION

In conclusion, this case highlights a significant yet harmless drug interaction between Cefdinir, a commonly prescribed antibiotic for OM, and iron-containing products. As shown in the case above, the co-administration of these substances can result in a maroon-like colouration of the stool. While this is considered a harmless side-effect, it still causes concern among parents and healthcare providers and contribute to a range of unnecessary medical investigations. Therefore, parents' medication counselling about these potential side effects is crucial to alleviate distress and reduce healthcare costs associated with unnecessary emergency visits. This also applies to healthcare providers, the lack of awareness among healthcare providers regarding this interaction underscores the importance of improving knowledge and communication to enhance therapeutic outcomes and reduce the orders of unnecessary investigations. Moving forward, it is essential that we provide comprehensive education to parents and healthcare providers alike on expected side effects and drug interactions, thus, ensuring a more informed and proactive approach to paediatric care.

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Conflict of Interest

The authors declare no conflict of interest relevant to this article.

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