Case Report

Cefdinir associated bloody stool in Riyadh infant: A case report

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Abstract

Cefdinir is one of the broad spectrum cephalosporin used as a replacement to amoxicillin in allergic pediatric population. There are reports of forming red stool in patients receiving cefdinir along with iron or iron containing preparations. This is a benign interaction and wane upon completion/discontinuation of cefdinir therapy. This case report describes a 6-month-old boy whose parents were distressed when they found reddening of their ward's diaper while taking cefdinir in presence of iron supplements.

Keywords: Cefdinir, infant, iron, red stool, Riyadh

Introduction

Pediatric population are vulnerable to greater degree of drug–drug interaction.[1] Antibiotics are the most commonly prescribed drug in children.[2] Around 60% of the drug orders for pediatric patient contain antimicrobial agent[3] and approximately 75% of infants receive nutritional formulas.[4]

Cefdinir is an advanced-generation, broad-spectrum antibiotic approved for the treatment of community-acquired pneumonia, acute bacterial exacerbations of chronic bronchitis, acute maxillary sinusitis, pharyngitis/tonsillitis, acute bacterial otitis media, and uncomplicated skin and skin-structure infections in adult and pediatric patients.[5] It serves as an alternative to amoxicillin in penicillin allergic pediatric patients. The package insert of cefdinir gives caution on bloody stool side effect in infant if given to infants who are concurrently receiving oral iron or iron supplementation due to formation of non-absorbable complex in the gastrointestinal tract. However, this complex has no known negative impact on the health of the child, nevertheless, prescribers should convey this information to promote rational prescribing practice.

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Case History

A 6-month-old boy, weighing 11 kg, presented to a private hospital complaining from hoarseness where he was diagnosed as a case of whopping cough and was prescribed a prednisolone for 3 days, but symptoms persist. In addition, he was suffering from dyspnea and phlegm in the chest. Patient went back to the hospital where he was prescribed a clarithromycin for 5 days. Afterwards, patient condition was stable for a month until symptoms emerged again. Eventually, parents visited the hospital and their child was given cefdinir suspension 3 ml twice a day for 10 days. After the first day dosing of cefdinir, baby's mother noticed red stool in his diaper and was distressed, she contacted the doctor and she responded that this side effect is not documented in the

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medication leaflet and she suggested discontinuation of cefdinir if the adverse event continued. Parents were still distressed and contacted a clinical pharmacist. The clinical pharmacist asked the parents if the baby was given any iron supplement, parents denied any other medication or supplements except for iron fortified formula called (Ronalac®), using Naranjo Nomogram to asses probability of adverse drug reaction in this case, cefdinir associated red stool in our case was determined as a probable event.[6] Pharmacist then assured the family that this is a benign interaction between cefdinir and iron fortified milk, and the stool will return to normal color once the course of cefdinir is completed. However, cefdinir was discontinued by family, since there was no need for cefdinir as the patient didn't suffer from fever or other symptoms indicating bacterial infection. Parents were relieved when stool color returned to normal on the same day of cefdinir discontinuation.

Discussion

Despite presence of FDA guideline on the rare possibility of red stool in patients who receive concurrently cefdinir and iron preparation, there is absence of awareness among the healthcare professionals, especially pediatricians. However, there are several cases found in the medical literature documenting this side effect. The earliest case reported in 2008 where a 7-month-girl was prescribed cefdinir while she was taking ferrous gluconate, patient presented to the emergency department complaining of maroon colored stool, the medical team reported this side effect as a drug–drug interaction.[7] Another case, occurred in 2009, a 5-month-old boy received cefdinir for otitis media, arrived at emergency complaining of red stool for 2 days with no other symptoms, he didn't receive any iron supplement, only iron fortified milk. However, patient's family requested to change cefdinir to another antibiotic, thus he was switched to amoxicillin.[8] A recent case happened in Saudi Arabia 2019, the case reported a 4-year-old girl received three different courses of cefdinir suspension, she suffered from red stool through all cefdinir courses due to drug–diet interaction between cefdinir and (Pediasure®) formula.[9]

Cefdinir forms red stool due to the formation of a nonabsorbable complex that is developed between the cefdinir or its metabolite and iron in the gastrointestinal tract. Dose-dependent inhibition of absorption of cefdinir is reported with iron (10 mg and 60 mg inhabits 31% and 80%, respectively). However, iron fortified milk that contains 2.2 mg elemental iron was not correlated with a significant effect on pharmacokinetics of cefdinir. Therefore, cefdinir was usually mixed with infant formula due to its very low iron content (1.8–2.7 mg).[10] Development of red stool at the end of first day dosing of cefdinir in this case indicates that the very low amount of iron is sufficient to form the red stool. Hence care is needed even when cefdinir is prescribed in patients receiving infant formula containing very low amount of iron.

Although red stool formation as side effect is a mild and benign interaction, but it caused affliction both for the physician and parents. In this case, clinical pharmacist played an important role in bringing to the knowledge of both physician and parent about the mild nature of reaction and its possible recovery upon discontinuation of cefdinir therapy. Finally, primary care practioners can play a major in alleviating this type of manifestation as they are primary point of contact to the patients and share responsibility for their comprehensive care. Educational sessions and development of local guidelines are proven to be effective in combating of some of the prescribing difficulties faced by today's physicians.[11]

Conclusion

Despite absence of noticeable severe impact of interaction between cefdinir and iron, it is significant as it may lead to unnecessary panicky situation among parent. Periodic updating of physician, especially those in primary care, on adverse effect of commonly prescribe drugs and their routine interaction may obviate this type of scary situations in health practice.

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Conflicts of interest

There are no conflicts of interest.

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