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TREATMENT FOR ACNE VULGARIS: A CASE REPORT

Aminova Nigina Shavkatovna
Samarkand State Medical University
Asmita Vashisth
Samarkand State Medical University, student

Abstract: BACKGROUND: Clostridium difficile (C. difficile) is a gram-positive, anaerobic, spore-forming bacillus. It can lead to pseudomembranous colitis characterized by electrolyte disturbances, toxic megacolon, and septic shock. The risk of C. difficile infection is higher with use of certain classes of antibiotics, or when an antibiotic used for a long time. Azithromycin is a macrolide antibiotic known to be safe, with few adverse effects such as diarrhea, stomach pain, and constipation. Azithromycin is currently used for the treatment of acne, with different dosing regimens for patients who cannot receive traditional treatment based on practice guidelines.
Keywords: Acne vulgaris, Azithromycin, Clostridium Infections, diarrhea

INTRODUCTION: Acne is a disease that can be seen in the first year of life, early childhood, prepubertal age, and puberty. We report a case of infantile acne in a 6-month-old female and we review the clinical presentation, pathogenesis, and treatment of infantile acne.

Literature review

Acne vulgaris

Acne vulgaris, a prevalent inflammatory disorder of the pilosebaceous unit of the skin, predominantly affects the face and trunk. It is estimated to impact about 9% of the global population, with a higher prevalence among individuals aged 12–24 years (about 85%) and a considerable percentage of patients aged 20–29 years (around 50%) (9). In addition to its physical symptoms, acne is also known to cause scarring in affected areas. These scars have significant psychological and social implications, including an increased risk of suicide, depression, poor academic performance, unemployment, and poor quality of life for those afflicted with this condition (10). Therefore, acne scars represent a significant comorbidity associated with acne, emphasizing the need for effective treatments that not only address physical symptoms but also prevent or minimize scarring (11, 12). Acne is characterized by the elevation of certain cytokines, including TNF-α, IL-1β, and granulocyte-macrophage colony-stimulating factor. Although the exact mechanism and cause of this inflammation are still unknown, research suggests that it may be related to Propionibacterium acnes. Therefore, recent studies support the use of TNF inhibitors in the treatment of this condition.

Results. Case Report

A 32-year-old woman presented to a dermatology clinic with a past medical history of severe acne vulgaris, hyperlipidemia, and migraine, with no past surgical history or prior hospitalization. She has been primarily treated with clindamycin 1% topical solution 2 times daily and azithromycin 250 mg by mouth 3 times weekly for 6 weeks based on her case and the dermatologist's diagnosis. Eight months later, she had a dental implant in which she was prescribed amoxicillin/clavulanic acid 1 g by mouth for 10 days.

Ten months later, after completion of the first acne treatment regimen, the patient returned to the clinic with inflammatory acne vulgaris. The therapeutic plan was to reuse the previous regimen of azithromycin. Four days following her completion of the second course of azithromycin, she started to have mild abdominal pain, frequent soft stool (3 times a day) with abdominal gasses, and unusual stool odor. The pain was more frequent and kept worsening with softer bloody stool (around 5–6 times a day). She presented to the gastroenterology clinic, and a complete blood count (CBC) test and C. difficile toxin A test were ordered, in addition to a colonoscopy. Her white blood count (WBC) as 9590 cells/μL (normal range: 4500–10 000 cells/μL) and the serum creatinine (SCr) was 0.6188 mg/dL (normal range: 0.59–1.04 mg/dL). She still had mild abdominal pain and bloody diarrhea (3–4 times per day). As a result, the C. difficile toxin test was repeated, and the result came back positive. This time she was treated with vancomycin 125 mg by mouth 4 times daily for 10 days and her symptoms improved accordingly.

Discussion

We report the case of a woman diagnosed with C. difficile-associated diarrhea after recurrent use of azithromycin regimen for the treatment of severe acne vulgaris.

Acne vulgaris is a common cutaneous disorder characterized by inflammation of the pilosebaceous unit of a hair follicle and commonly caused by the anaerobic bacterium Propionibacterium acnes [14]. Many pharmacological options are very effective to reduce the inflammation of acne and improve the skin's appearance, including topical oral and procedural therapies [7]. The selection is made based on the severity of acne vulgaris and patient preferences [7,15]. Based on the acne vulgaris treatment guideline, the first line of treatment for mild acne includes topical agents like benzoyl peroxide and retinoids, and topical antibiotics like clindamycin [7]. For moderate to severe cases, systemic agents can be used either alone or in combination with topical agents [7]. Systemic agents include isotretinoin and tetracyclines such as doxycycline. Macrolide can be used as an alternative treatment for those who cannot use doxycycline, such as pregnant women and children [7].

In our case, the patient was initially treated with clindamycin 1% topical solution 2 times daily and azithromycin 250 mg by mouth 3 times weekly for 6 weeks, which was not the first-line option in her case. Then, exactly the same course of azithromycin was repeated 10 months later, which might have increased her risk of C. difficile infection. In addition, between the 2 courses of azithromycin, she received another course of amoxicillin/clavulanic for her dental implant. As a result, after completing her second course of azithromycin, she was diagnosed with an initial episode of non-severe C. difficile infection based on her symptoms, colonoscopy, and laboratory data (WBC ≤15 000 cells/μL and SCr <1.5 mg/dl) [7]. The C. difficile infection was most likely due to the repeated course of the azithromycin regimen, since she had no risk factors such as history of colon disease or any gastrointestinal disease and she had not taken any laxatives for 48 h before her symptoms started.

Our patient was initially treated with metronidazole 500 mg by mouth 3 times daily for 10 days based on the hospital practice guidelines and had failed the treatment. Metronidazole treatment failure was unknown. However, she was re-treated successfully with vancomycin 125 mg by mouth 4 times daily for 10 days

Although azithromycin has a good safety profile and is rarely associated with reported cases of C. difficile, our case is a rare incidence that occurred after a repeated course of azithromycin to treat acne vulgaris. This case shows the importance of following the treatment guidelines carefully for managing

acne vulgaris cases, and also highlights the role of infectious disease pharmacists in such decision-making for patient well-being and better health outcomes.

Conclusions

The acne vulgaris regimen of azithromycin of 250 mg 3 times weekly has been increasingly used in dermatology clinics for the treatment of acne vulgaris, despite being considered an alternative treatment based on the American Academy of Dermatology guidelines. A thorough assessment of the patient's history, including the previous antibiotic regimen used and patient eligibility, needs to be considered before prescribing azithromycin for acne vulgaris. This report highlights the importance of managing patients with acne vulgaris according to current practice guidelines, and to report a link between the use of azithromycin as an acne regimen and the risk of C. difficile colitis occurrence.

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