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A Case Report on Erythromycin Induced Dermatological Condition

Dr. Divya Amaravadi[1*]

[1*] Pharm.D, Assistant Professor, Department of Pharmacy Practice, CMR College of Pharmacy, JNTU-Hyderabad Telangana India - 501401.

Email : div4075@gmail.com

Abstract

Each year many patients are hospitalized due to (ADR) adverse drug reactions. In this case a 20 year old female reported to out-patient clinic with complaints of sore throat (pharyngitis), cold and fever of 100.8 degree Fahrenheit. She was then diagnosed with upper respiratory tract infection. The patient was prescribed with Acetaminophen 650 mg per oral (PO) once a day for fever, Levocetrizine 5mg PO twice a day for cold and Erythromycin 250 mg PO twice a day for sore throat for five days. After few days the patient observed certain patchy, dry skin and peeling on right hand index finger along with chapped, cracked lips with little bleed due to excess dryness of the skin. The cause identified was to be erythromycin as there were no dermatological issues observed post de-challenge of the medication. Therefore it was identified as an ADR with erythromycin.

Keywords: ADR, erythromycin, sore throat, PO.

Introduction

The definition of ADR (adverse drug reaction) as per World Health Organisation is “a response to a drug which is noxious and unintended and which occurs at doses normally used in man for prophylaxis, diagnosis or therapy of disease or for modification of physiological function” [6]. ADRs hold special importance in healthcare as they account for 6% of total hospital admissions and increasing the economic burden on healthcare system, withdrawal of drugs from market and death [4]. Antibiotic use is common in the inpatient setting. Approximately 50% of hospitalized patients receive at least one antibiotic during their hospital stay, with an estimated 20 % to 30% of inpatient days of antibiotic therapy considered unnecessary. The reason for antibiotic overuse are myriad, including administration of antibiotics for nonbacterial or noninfectious syndromes, treatment of conditions caused by colonizing or contaminating organisms, and

durations of therapy that are longer than indicated [5]. Erythromycin is a macrolide antibiotic often used in children with minor bacterial infections, especially in those with an allergy to penicillin [7]. Unnecessary use of antibiotics is particularly concerning because antibiotics may be associated with a number of adverse drug events (ADEs), including allergic reactions, end-organ toxic effects, subsequent infection with antibiotic-resistant organisms, and *Clostridium difficile* infections [5]. Cutaneous eruption is one of common forms of adverse reaction manifestation [4]. Cutaneous adverse drug reactions can be divided into those not posing a threat to the life of the affected individual and life-threatening reactions. The former manifests as a large variety of skin reactions such as rashes, including a morbilliform rash, urticaria, fixed drug eruption, purpura, or vasculitis. However,certain individuals experience far more severe cutaneous adverse drug reactions (SCAR) such as urticarial and maculopapular exanthema (MPE) and their more severe counterparts, namely, acute generalized exanthematous pustulosis (AGEP), a drug rash with eosinophilia and systemic symptoms (DRESS), Stevens–Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) [6].

Case Report

A 20 year old female patient reported to out-patient (OP) clinic with complaints of sore throat (pharyngitis), cold and fever of 100.8 degree Fahrenheit. The physical examination was otherwise normal. The patient was diagnosed with upper respiratory tract infection (URTI). The patient was prescribed with Acetaminophen 650 mg per oral (PO) once a day for fever, Levocetrizine 5mg PO twice a day for cold and Erythromycin 250 mg PO twice a day for sore throat for five days. The patient had taken the medicines as per prescription and stopped on course completion. She however felt better symptomatically and returned back to her daily activities. On 6^{th} day the patient observed certain patchy, dry skin and peeling on right hand index finger along with chapped, cracked lips with little bleed due to excess dryness of the skin. Though the patient's symptoms of cold, fever, sore throat were resolved it left behind a skin-related clinical presentation. The patient again presented to the OP clinic for the observed condition. On physical examination by the physician it was identified as an adverse drug reaction to erythromycin intake. The patient was then advised to avoid erythromycin and completely and use an alternative medicine for any future URTI. After a month approximately the skin related conditions were found to be healing where the bleed in lips reduced but left a white mark or spot **figure 1**. The index finger also healed but left a white patch as shown in **figure 2**. After 3 months of follow-up with patient it was observed that the she had another episode of URTI later but avoided the erythromycin medicine due to which no dermatological skin reactions were observed.

Figure 1: White mark on lips.

Figure 2: Index finger rash patch.

Hence, we can say that as there was no re-challenge with erythromycin and no skin-related issues observed it confirms that the adverse effect was due to erythromycin PO, where the patient might have been allergic to the prescribed medication.

For reporting the Adverse drug reaction (ADR) the causality assessment was done as per Naranjo algorithm and was found be "probable" having a score as 7, meaning that there is a probability that the event is related to erythromycin adverse-reaction.

Discussion

Adverse Drug Reactions (ADRs) are the leading cause of hospital admissions to the extent of 5-10% cases. Therefore, it is essential to recognize ADR and to establish the causal relationship between the drug and the adverse event. Erythromycin ethylsuccinate is widely prescribed macrolide antimicrobial for upper and lower respiratory tract infections [1]. And in the present case report the patient had experienced the skin-related adverse reaction due to being allergic to erythromycin which once stopped and avoided had resolved. This can be co- related to another case report where an ADR of Stevens- Johnson Syndrome has been reported due to erythromycin treatment, showing that the medication can cause certain dermatological issues [3]. Establishing the causal relationship between the drug and the ADR is an important aspect in pharmacovigilance. Naranjo algorithm is a commonly used algorithm to carry out the causality assessment, which categorizes adverse drug reactions as possibly, probably or definitely due to a certain drug. In this patient, the ADR was found to be 'probably' related to erythromycin. Establishing the severity of an ADR is essential in categorizing the ADR reports. In general the severe ADRs require special care and may need hospitalization [2].

Conclusion

Erythromycin is used in several infective conditions. From the case report we can conclude that erythromycin has the property of causing dermatological reactions, though the number of cases reported is limited. Factors like self-medication and availability of antibiotics as over the counter drugs as in the present case report needs to be curbed in society at the earliest to prevent serious adverse effects including development of resistant strains in the community. This case is being reported to emphasize the need for clinicians to be aware of the risks of this potential ADR.

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