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Case report

Anaphylactic shock secondary to topical EMLA

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ABSTRACT

The eutectic mixture of local anesthetics (EMLAs) is an anesthetic cream frequently used by dermatologists for various aesthetic procedures on a daily basis. Although side effects of EMLA are usually mild local skin reactions, rare complications such as methemoglobinemia, central nervous system toxicity, and cardiotoxicity can occur. Herein, we are reporting a case of anaphylactic shock to topical application of EMLA.

Keywords: Anaphylactic shock, Angioedema, Topical EMLA, Urticarial

INTRODUCTION

Eutectic mixture of local anesthetics (EMLA) is a topical preparation containing 2.5% lidocaine and 2.5% prilocaine. It has a good safety profile and a relatively low incidence of side effects. We are reporting a case of anaphylactic shock in a young female patient after topical application of EMLA for an aesthetic procedure.

CASE REPORT

A 20-year-old medical student came to the dermatology out-patient department for undergoing fractional CO_2 laser for acne scars. Ten grams of EMLAs cream was applied under occlusion over forehead, bilateral cheeks, and chin for 45 min. During the last 5 min of the procedure, patient developed urticarial wheals over both cheeks, which rapidly progressed to the left forearm, bilateral palms, and trunk. Within 10 min, she also developed swelling of lips and tongue, discomfort in the throat with breathing difficulty. She was given Inj Pheniramine maleate (2cc) and Inj hydrocortisone (100 mg) intravenously and rushed to casualty immediately for further management. She had thready pulse, hypotension (nonrecordable blood pressure), dizziness, and breathing difficulty. She was given Inj Adrenaline 0.5 mg (1:1000) intramuscular, 500 mL of normal saline as intravenous bolus dose, and oxygen. She felt better after 15–20 min. Pulse (76 bpm) and blood pressure (130/70 mmHg) were normal. She was kept under observation for 12 h and then discharged with oral steroids and antihistamines for the next 3 days. She was diagnosed to have an anaphylactic shock secondary to topical EMLA. However, serum tryptase and IgE levels were not done subsequently.

DISCUSSION

EMLA is a topical preparation containing 2.5% lidocaine and 2.5% prilocaine. It has a good safety profile and a relatively low incidence of side effects. Local reactions are generally mild and short-

lasting consisting of pallor, redness, edema, itching, rash, and alteration in temperature sensation.[1] Minor reactions such as pallor and erythema were the most frequent reactions observed in 6509 applications of EMLA in hemodialysis patients undergoing cannulation with three reporting local irritation.[2] Contact urticaria as well as allergic contact dermatitis to EMLA have been reported. A 55-year-old lady developed contact urticaria to EMLA that was proved by an open test, and patch and prick test.[3] A 73-year-old woman who had been using EMLA cream under occlusion for postherpetic neuralgia developed allergic contact dermatitis to the prilocaine ingredient of EMLA proved by patch testing.[4]

Serious side effects such as methemoglobinemia, central nervous system, cardiovascular toxicity, and anaphylaxis although rare should be kept in mind. The side effects of EMLA are dependent on factors such as the amount of cream used, the anatomic location, the surface area covered, and the period of contact.[5] Methemoglobinemia secondary to EMLA has been reported in infants and adults. A 3-month-old infant who was on trimethoprim-sulfamethoxazole, methemoglobin-inducing drug, developed methemoglobinemia following the application of 5 g of EMLA.[6] A 23-year-old female developed lightheadedness, perioral cyanosis, and palpitations secondary to methemoglobinemia after a laser hair removal. A total of 150 g of EMLA had been applied over the trunk for 3 h before the procedure.[7]

In our patient, we suspected anaphylaxis or anaphylactoid reaction to either lidocaine or prilocaine. Anaphylaxis is an IgE-mediated reaction characterized by the release of histamine and other mediators from mast cells and basophils, whereas anaphylactoid reaction is a nonimmune reaction involving the direct release of mediators from mast cells/basophils or due to complement or bradykinin activation.[8] Although anaphylaxis usually occurs within minutes of exposure, our patient developed it after nearly 45 min. Delayed onset anaphylaxis and biphasic anaphylaxis are well known. She initially developed erythema over the procedural site. Within 10 min, pruritus and erythema developed over the hands, which later spread to forearms. This was followed by angioedema, dizziness, and hypotension. She had enjoyed good health although she did complain of experiencing pruritus over the hands after washing in cold water since a week prior. She did not give any previous history of adverse drug cutaneous reactions. No personal or family history of atopy was reported. Methemoglobinemia was ruled out as she did not develop any cyanotic discoloration over the lips. We had applied only the recommended quantity of 10 g under occlusion, which is standard practice. As anaphylaxis is an idiosyncratic reaction, there is no way we could have avoided it. Applying a test patch of EMLA would have helped only for predicting local reactions.

There are reports of anaphylaxis to topical antibiotics but none to EMLA.[9,10] Dermatologists should be aware of the rare possibility of this severe reaction and take emergency measures to tackle it. It is advisable to stock all the necessary drugs in the minor operation theater and shift the patient to the emergency room as early as possible. It is also imperative to observe all patients at least for 30 min after the completion of dermatologic procedures and to educate them about the possibility of late reactions. Tetracaine 1 g gel is an alternative topical anesthetic agent, which can be tried in our patient after a patch test with immediate and delayed readings for future procedures.[11] For confirmation of local anesthetic allergy, skin prick test can be done with various dilution of the agents. To avoid the risk of anaphylaxis, it may be necessary to do *in vitro* tests such as drug-specific serum IgE antibodies. However, these tests need standardization and are not widely used.[12]

CONCLUSION

Dermatologists commonly use the eutectic mixture of local anaesthetics (EMLAs) cream for most of the aesthetic procedures in day-to-day practice. We encountered our patient facing severe anaphylactic shock with topical EMLA cream in spite of its good clinical safety profile. Hence, we conclude by stating that we all must be cautious in detecting any untoward adverse effects and acting immediately for the benefit of patient care & safety.

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