ALLERGIC CONTACT DERMATITIS OF THE EYE WITH TROPICAMIDE AND PHENYLEPHRINE TOPICAL MYDRIATIC SOLUTION: A CASE REPORT

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ABSTRACT

Allergic contact dermatitis is the most common form of contact dermatitis. It is the most common form of cutaneous adverse drug reaction phenomenon. Topical mydriatic drops are the most frequent and most common medication which includes tropicamide and phenylephrine is used in day to day ophthalmological opd. Allergic reaction on instilling these drops leaves the ophthalmologist with very few options for mydriatic medications. This is a case report regarding such an event of ACD in eye due to the use of the above medications.

KEYWORDS: allergic contact dermatitis (ACD), phenylephrine, tropicamide, periorbital edema rechallenge, dechallenge, naranjo scale.

INTRODUCTION

The term adverse drug reaction (ADR) has been defined as ‘any noxious change which is suspected to be due to a drug, occurs at doses normally used in man, requires treatment or decrease in dose or indicates caution in the future use of the same drug’.11 All drugs are associated with adverse drug effect and it depends upon the prescriber to use it depending upon the risk benefit ratio. Adverse drug reactions are important causes of morbidity and in house hospitalization which takes a major chunk of health expenditure. Studies have found serious ADRs accounting for 6.7% of hospitalized admissions in USA. ADRs accounted for 0.7% of total admissions and 1.8% of total deaths in a South Indian hospital. It was found that cutaneous ADRs (CADRS) to be the most common type of ADRs. Studies have found the
incidence of CADRs in developed countries as 1–3%, while the incidence in developing countries 2 and 5%. So it has become an important practice to report ADRs to the regulatory authorities.[2]

Allergic contact dermatitis (ACD) is an acute or chronic immunologic or non immunologic condition of the skin characterized by inflammation when it comes in contact with any allergens. The prevalence of contact dermatitis in the general U.S. population has been variably estimated between 1.5% and 5.4%. Contact dermatitis is the third most common reason for patients to seek consultation with a dermatologist, accounting for 9.2 million visits in 2004.[3]

Early reporting of the ADRs is very important from pharmacovigilance point of view. So, monitoring of ADRs is carried out by various methods, of which voluntary or spontaneous reporting is commonly practiced. This system offers many advantages. It is inexpensive and easy to operate. It encompasses all drugs and patient populations, including special groups.[4] Hence I am here presenting a case study of allergic contact dermatitis due to tropicamide and phenylephrine mydriatic solution.

**CASE REPORT**

an 80 year old lady non hypertensive, non diabetic with the complaints of flashes of light in her visual field visited an ophthalmologist. On application of a topical mydriatic solution containing tropicamide (0.8%) and phenylephrine (5%) for ophthalmoscopic examination. After about one hour she started to have itching and redness over her periorbital area that is the eye lids along with that she had lacrimation and stinging sensation. The swelling along with redness was very progressive over six to eight hours and she was unable to open her eyes due to edema. The area was red, hot and tender. The swelling stayed for about three to four days and then gradually subsided after injection of dexamethasone, chlorpheneramine maleate. Further the drug was not instilled on the eye. She was under dechallenge for a period of three months. On rechallenge with the same solution she again gave the same symptoms which were more aggressive this time and was associated with conjunctivitis. As along with the swelling and redness and lacrimation as being mentioned above she showed systemic manifestation like rise in temperature along with shivering. Immediately, she was put on corticosteroids and H1 anti histaminic after that she got relieved of the symptoms. On doing her routine investigations her haemoglobin was 10.8gm/dl, total leucocyte count was 8200cells/cu.mm, neutrophil was 55 cells/cu.mm, lymphocyte was 40 cells/cu.mm, monocyte
3 cells/cu.mm, eosinophil 2 cells/cu.mm, ESR was 8 at the end of first hour, Absolute eosinophil count was 164 cells/ cu.mm, serum alkaline Phosphatase 5.2 K.A units, serum bilirubin total 1.5, direct 1.0, indirect-0.5 aspartate amino transferase 30 u/l, alanine aminotransferase 34u/l, Total proteins 6.3, serum albumin 3.6, serum globulin 2.7, random blood sugar 90mg/dl. There was no previous history of any bacterial, fungal or viral infection. Naranjo algorithm, Shaumock and Thornton preventability scale, modified Hartwig severity scale. On rating the above adverse drug reaction on the various scales it was seen that it was the definite cause of the ADR as from Naranjo scale, on the severity assessment scale by Hartwig the reaction was moderately severe. Also rating the ADR on preventability criteria according to Shaumock and Thornton scale it was definitely preventable. Hence it can be said that the reaction that occurred was due to the above medication and it can be prevented if definitive steps were taken.\[5, 6\]

**DISCUSSION**

Drugs, no matter how safe and efficacious, are always coupled with inescapable risk of adverse reactions. ADRs are a cause of significant morbidity and mortality in patients. The incidence and severity of ADRs can be influenced by patient related factors like age, sex any associated mortality or morbidity. It also depends on the route of administration, duration of therapy dosage etc. Cutaneous ADRs are the most common type of adverse reaction attributed to drugs. The incidence of CADRs varies from 15-30%. The studies on cutaneous ADRs are rarely reported as it can only be conducted in clinics of internal medicine.\[7\] Contact dermatitis accounts for 4-7% of all dermatological consultations.\[8\]

ACD occurs due to a lot of allergens and it involves different anatomical sites, among which eyelids and periorbital areas are important. ACD is the most common form of dermatitis due to topical eye drops and its systemic manifestations are hapten induced.. In a study carried out by Bhatt et al. it was seen that topically applied ophthalmic drugs are a major cause of ACD of the periorbital region. Major classes include beta-blockers such as timolol and levobunolol, antibiotics, parasympathomimetics like pilocarpine, sympathomimetics like apraclonidine, brimonidine and dipivefrine, carbonic anhydrase inhibitors like dorzolamide, and prostaglandins like latanoprost. It was observed by them that phenylephrine causes majority of the reactions in mydriatic composition.\[9\] In another study by Garg et al it was found that in the mydriatic solution phenylephrine was the cause of ACD.\[10\] Also in another study by Elena s. Novitskaya it was seen that largest number of case reports of ACD of the
eye in case of topical mydriatic solution was atropine followed by phenylephrine. Other topical mydriatics like tropicamide and cyclopentolate can also induce ocular hypersensitivity reactions but the prevalence was less common than atropine and phenylephrine.[11]

CONCLUSION

Cutaneous ADRs are most common type of ADRs encountered in day to day practice. And among them contact dermatitis appears to be the most frequent. This case study is an effort to document such type of ADRs and to make case reporting a good clinical practice among physicians. Topical mydriatics are seen to cause an adverse reaction which brings in light about the morbidity they cause to the patient. As an indispensible part of ophthalmological practice the use of mydriatic drugs should be made more rational with an eye to prevent such incidents.

REFERENCES


