Original Research Paper

Volume : 5 | Issue : 10 | October 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Ocular Manifestations, Complications and Management of Various Types of Ocular Hypersensitivity Reaction in Tertiary Care Hospital

Medical Science

KEYWORDS :

Hemkala L. Trivedi	Ex Associate Professor, Ophthalmology department, TNMC, Mumbai.
Sujit M. Murade	Assistant professor, Ophthalmology department, TNMC, Mumbai.
Pritam J. Pardeshi	MD Microbiologist
Darshana B Rathod	Assistant professor, Ophthalmology department, TNMC, Mumbai

ABSTRACT

Ocular hypersensitivity reaction (OHR) comprises many different clinical entities with varied signs and symptoms, etiology and management. Gell and Coombs classified hypersensitivity reactions into four different groups (Types I, II, III, and IV) There are very few isolated studies on OHR; most of studies were on combined with allergic rhinitis or only on allergic conjunctivitis. So the present study was conducted to study each type of OHR in detail and to find out its severity, various treatment modalities, complications and recurrence rate of each type of OHR. This is one year prospective study. It was carried out on 50 patients with symptoms of ocular hypersensitivity Reaction (OHR) in department of the Department of Ophthalmology and Dermatology of tertiary care hospital. We found that Type 1 ocular reaction was most common of these type one reaction allergic conjunctivitis was most common and patients mostly presents with itching (92%). Detail study of individual type of Ocular hypersensitivity reaction (OHR) was done. Patients with OHR were treated with various modes of treatment like Topical treatment in all the patients and additional systemic treatment needed in 36% of patients whereas 4% of patients managed with surgical interventions.

Introduction

Approximately 15–20% of the world population is affected by some form of allergic disease; ocular symptoms estimated to be present in 40–60% of allergic patients **(1)**. A hypersensitivity reaction is defined as a state of altered reactivity in which the body mounts an amplified immune response to a substance. In 1963, Gell and Coombs classified hypersensitivity reactions into four different groups (Types I, II, III, and IV) (**2**). Ocular hypersensitivity reaction (OHR) comprises many different clinical entities with varied signs and symptoms, etiology and management. There are very few isolated studies on OHR; most of studies were on combined with allergic rhinitis or only on allergic conjunctivitis. Type 2 and type 3 hypersensitivity reactions were rarely studied. So the present study was conducted to study each type of OHR in detail and to find out its severity, various treatment modalities, complications and recurrence rate of each type of OHR.

Materials and method

This is one year prospective study. It was carried out on 50 patients with symptoms of ocular hypersensitivity Reaction (OHR) attending the outpatient department of the Department of Ophthalmology and Dermatology of tertiary care hospital, after obtaining permission from ethical committee of the institution and consent from the study participants. Patients with history of chief complaints like pain, redness, discharge, photophobia, foreign body sensation, decrease in vision, etc were included in this study. Patients who were non compliant, who were not available for follow up for required period of time were excluded from study.

Gross examination is done by torch light. Routine ophthalmic tests were performed for the diagnosis of type of hypersensitivity like Snellens visual acuity charts were used to test visual acuity and slit lamp used to test anterior segment examination. Digital tonometry and schimer's test was performed for each patient. Fluorescent staining was also done to detect any corneal pathology. Other investigations to find out type of OHR were also done like complete blood count, RA antigen detection, Mantoux test, serum electrolytes, liver function test and kidney function test.

Patients were treated according to type of hypersensitivity reaction (topical, antihistaminic, mast cell stabilisers, anti-inflammatory NSAIDs, lubricants, steroids, and immunosuppressant). Systemic treatment and surgical treatment were also given accordingly. After that any complications were observed and recorded. Patients were further followed up for the three months to look for the recurrence. Analysis of various parameters with ocular hypersensitivity reaction was done.

Results

Ocular hypersensitivity reaction (OHR) was classified by Gell and Coombs in four types. In our study Type 1 ocular reaction was most common of these type one reaction allergic conjunctivitis was most common (Table 1). Patients were presented with itching (92%) most common symptom followed by redness (44%) (Table2). On detail study of individual type of OHR, we found that out of 5 cases of vernal keratoconjunctivitis (VKC) mixed type (3/5 i.e.60%) was most common followed by bulbar type (2/5 i.e.40%) and contact lenses (2/3 i.e.67%) was most common etiology of Giant Papillary Conjunctivitis (GPC) followed by Suture material (1/3 i.e.33%). We had got six cases of Steven Johnson syndrome (SJS), drugs causing this were enlisted in Table 3. Episcleritis was the most common manifestation of collagen vascular disease (Table 4). There was strong association seen between Phlyctenular keratoconjunctivitis (PKC) and tuberculosis, 4/5 (80%) were having tuberculosis. Drugs causing contact hypersensitivity were mentioned in Table 5. Various methods of treatment used for treating OHR, Topical and systemic treatment was given in (50/50) 100% and (18/50) 36% of patients respectively whereas surgical intervention required in (2/50) 4% and bandage contact lens in (2/50) 4% of patients. In topical drugs steroids (54%) was most commonly used drug followed by mast cell stabiliser (36%) (Table 6). Complication and recurrence of each type of OHR were mentioned in Table 7.

Discussion

Present study was conducted mainly to study individual types of Ocular hypersensitivity reaction (OHR), as there are very few studies focusing all types of OHR. In this study type 1 OHR was most commonly seen. Similar find-

ing was showed by Suresha et al (3).

Ocular hypersensitivity reaction (OHR) presented with variety of symptoms. In our study most common symptom was by itching (92%) followed redness (44%), photophobia (16%) and discharge (14%) (Table 1). Suresha et al (3) showed itching (100%) was most common symptom followed by redness (57.7%).

In our study among the five cases of vernal keratoconjunctivitis, mixed (3 cases) was more common followed by palpeberal (2 cases). Study by Ujwala et al (4) also showed most common type of VKC is mixed type (72%) similar to our study but the study by Suresha et al (3) got Palpeberal type (49%) was more common followed by mixed (24%).

In present study we found that most common etiology of Giant papillary conjunctivitis (GPC) was contact lenses (67%) followed by suture material (33%). A. Leonardi et al (1) also stated that contact lens is most frequent cause of GPC followed by postoperative sutures**.**

We found total six cases of SJS/TEN in our study, of which four were caused by drugs these are Cotrimaxol- Trimethoprim (COT), ciprofloxacin, paracetamol and nivarapine whereas etiology of two cases were unknown (Table 3). Study by L.W. Yip et al (5) mentioned was most common cause whereas study by Shaukat Ali et al (6) NSAIDS and antiepileptics were most common cause of SJS/TEN. Thomas et al (7) mentioned the various drugs causing SJS/TEN like COT, aminopenicillin, cephalosporin, quinolone, antileptics NSAIDS, corticosteroid etc.

In collagen vascular disease (CVD) with ocular manifestation, rheumatoid arthritis was most common (62.5%) followed by SLE, JRA and ankylosing spondylitis (12.5%) each and no other types of CVD found. Episcleritis (37.5%) was most common manifestation in CVD (Table 4).

In our study we found strong association (80%) between phlyctenular keratoconjunctivitis (PKC) and tuberculosis similar finding showed by Herry et al (8), 61% association. Study by Sorsby et al (9) written on phlyctenular conjunctivitis that 84% were tuberculin positive and about 72% were radiologically positive

We found six cases of ocular drug allergy they were caused by sulphacetamide, chloromycetin, Tropicacyl, atropine, timolol malate and phenylephrin (Table 5). Leonardi et al (1) also mentioned the similar drugs causing ocular allergy.

The management of ocular allergy was aimed at inhibiting the release of mediators of allergy, controlling the inflammatory cascade and symptoms, and preventing ocular surface damage. Out of all OHR patients, 100% required topical treatment and 4% required bandage contact lenses and surgical management additionally.

On study of treatment by individual type we found that allergic conjunctivitis only topical treatment was required in all cases, of which 44% patients were recovered by antihistaminic and vasoconstrictor and 16% required low steroid in addition whereas 40% required mast cell stabilizers in addition.

For treating VKC, antihistaminic and steroid were effective in 40% of cases where as 60% of cases were cured with antihistaminic and mast cell stabilizers.

In GPC contact lens cleaning, proper lens fitting is more important than pharmacotherapy. We found that irrigation; steroid and antihistaminic in combination were also effective for treating GPC.

The ocular manifestation of CVD required lubricants, immunosuppressant, punctal plugs in cases of keratoconjunctivitis sicca, while topical steroids were required for episcleritis patients. Systemic and topical steroids were given in 12.5% of cases of scleritis and corneal involvement. Uveitis cases responded well to topical steroids and mydriatics. Treatment for systemic disease was continued.

Allergic drug reaction responded to non-pharmacologic strategies like stoppage of culpable drug and steroid to reduce the inflammation. Two cases of corneal graft rejection were treated with steroids and immunosuppressant but still visual outcome was poor in these cases.

Conclusion

There are various types of ocular hypersensicitivity reaction with varied etiology, manifestations, and severity so treatment options also changes accordingly. Management involves non-pharmacologic and pharmacologic strategies. It is, therefore, important for the clinician to identify what type of OHR is present, assess the severity and comorbidity before instituting an appropriate treatment plan so that risk for vision loss and blindness due to delay in management will be decreased.

Table 1: Distribution of various types of OHR

Type	Cases	% of cases
Type 1	22	44
Type 2	01	02
Type 3	14	28
Type 4	13	26
Total	50	100

Table 2: symptoms of ocular hypersensitivity reaction

Sr. no.	Symptoms	No. of cases	% of cases
1.	Itching	46	92
2.	Redness	22	44
3.	Photophobia	8	16
4.	Watering	8	16
5.	Discharge	7	14
6.	Foreign body sensation	7	14
7.	Decrease vision	5	10

Table 3: Drugs causing SJS/TEN in 6 cases

Sr. No.	Drug	Group
1.	Cotrimaxol+Trimethoprim	Antibiotics
2.	Ciprofloxacin	Antibiotics
3.	Paracetamol	NSAIDS
4.	Nivarapine	Antiretroviral drug
5.	Unknown	Unknown
6.	Unknown	Unknown

Table 4: Ocular manifestations of 8 cases of Collagen Vascular Disease

Sr. No.	Ocular manifestations	No. of cases	% of cases
1.	Episcleritis	3	37.5
2.	Corneal	2	25
3.	Scleritis	1	12.5
4.	KCS	1	12.5
5.	Uveitis	1	12.5
6.	Others	0	0

Volume : 5 | Issue : 10 | October 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Table 5: various local drugs causing contact hypersensitivity

Sr. No.	Local drug	Group	Duration
1.	Sulphacetamide	Antibiotics	48 hours
2.	Chloromycetin	Antibiotics	24 hours
3.	Tropicacyl	Mydriatic	48 hours
4.	Atropine	Mydriatic & cycloplegic	48 hours
5.	Timolol Maleate	Antiglaucoma	6 months
6.	Phenylephrine	Mydriatic	48 hours

Table 6: Details of topical treatment

Sr. no.	Group of drug	No. of cases	% of cases
1.	Steroid	27	54
2.	Mast cell stabiliser	18	36
3.	Antihistaminic	13	26
4.	NSAIDS	11	22
5.	Lubricants	9	18
6.	Antibiotics	9	18
7.	Immunosuppressant	5	10
8.	Autologus serum	2	4

Table 7: Complications and recurrence in OHR

Sr.No.	Types	Total cases	No. Of cases with complication		Recurrence	
			No.	%	No.	%
Type 1						
1.	Allergic conjunctivitis	13	0	0	10	79
2.	Vernal keratoconjunctivitis	5	1	20	3	60
3.	Atopic keratoconjunctivitis	1	0	0	1	100
4.	Giant papillary conjunctivitis	3	0	0	2	66
Type 2						
5.	Ocular cicatrical pemphigoid	0	0	0	0	0
6.	Pemphigus vulgaris	1	0	0	0	0
Type 3						
7.	Steven johnson syndrome & toxic epidermal necrolysis	6	3	50	0	0
8.	Collagen vascular disease	8	1	12	5	60
9.	Plyctenular keratoconjunctivitis	5	1	20	1	20
Type 4						
10.	Drug allergy	6	1	16	1	16
11.	Corneal transplant rejection	2	2	100	0	0
12.	Graft versus host disease	0	0	0	0	0
	Total	50	7	14	23	46

References:

1. A. Leonardi, E. Bogacka et al. Ocular allergy: recognizing and diagnosinghypersensitivity disorders of the ocular surface. Allergy 67 (2012) 1327–1337.
2. David Marc, B.Sc et al. Hypersensitivity Reactions and Methods of Detection. NeuroScience, Inc. December, 2009: pg no. 1-4.
3. Suresha Rajappa, Farhat Fatima et al. A Clinical Study of Vernal Keratoconjunctivitis. IJBR (2014) 05 (04) pg. no. 284-287.
4. Ujwala S Saboo, Manish Jain et al. Demographic and clinical profile of vernal keratoconjunctivitis at a tertiary eye care center in India. Indian J Ophthalmol. 2013 Sep; 61(9): 486–489
5. L. W. Yip, B. Y. Thong et al. Ocular manifestations and complications of Stevens–Johnson syndrome and toxic epidermal necrolysis: an Asian series. Allergy 2007: 62: 527–531
6. Shaukat Ali Chhipa, Sadia Masood et al. Ocular manifestation, complications and aetiological factors in Stevens-Johnson syndrome/toxic epidermal necrolysis. J Pak Med Assoc, Vol. 65, No. 1, January 2015, 62-64.
7. Thomas Harr, Lars E French et al. Toxic epidermal necrolysis and Stevens-Johnson
8. Syndrome. Orphanet Journal of Rare Diseases 2010, 5:39, 2-11.
9. Harry Stein and Ida Freiman. PHLYCTENULAR CONJUNCTIVITIS IN AFRICAN CHILDREN. *Arch Dis Child* 1958, 33: 292-294
10. Arnold Sorsby. The aetiology of phlyctenular ophthalmia. The british journal of ophthalmology. May, 1942; pg 190-215.