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Allergic conjunctivitis in a tertiary eye hospital, Nigeria

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ABSTRACT

Background: Worldwide, approximately 1/3 of the populations are affected by allergic diseases. Ocular allergy symptoms presented in 40-80% of the affected individuals. Allergic eye disease is a localized allergic condition that is frequently associated with rhinitis and occasionally with asthma. The symptoms and signs can manifest as conjunctivitis, blepharitis, blepharoconjunctivitis, or keratoconjunctivitis.

Objective: To determine the pattern of presentation of ocular allergy in the study population and to create awareness among health professional and the public.

Methods: A four months hospital based cross sectional study involving administration of self explained structured questionnaires to all consented patients that presented at our eye care facility on accounts of ocular itching during the study period was conducted. All the patients had comprehensive eye assessment by consultant ophthalmologist. Data was analyzed with SPSS version 18

Results: Of 200 patients that presented with conjunctivitis during the study period 163 (82%) patients were due to allergic conjunctivitis. There were 80 males and 83 females. Majority (43.6%) of the patients were within the age groups of 17 years-33 years, followed by 0-16 years (42.3%). Majority of the patients 102 (62.3%) presented with symptoms of ocular itching and redness. Only 18 (11%) of the patients were a known asthmatic. However, 73 (44.8%), 87 (53.4%) and 79 (48.5%) of these patients have family history of asthma, atopy and ocular allergy respectively. Most of the patients 161 (98.8%) were treated with medication, while only two patients had surgical intervention (cornea ulcer debridement).

Conclusion: Allergic conjunctivitis is the commonest reasons why patients present with conjunctivitis at our eye clinic and it is commonest in the active age group. Eye health education about ocular allergy is underscored.

Key words: Ocular allergy, Atopy, Asthma, Vernal keratoconjunctivitis

INTRODUCTION

Worldwide, approximately one-third of the population is affected by some form of allergic disease and ocular allergic symptoms are estimated to be present in 40%–80% of the affected individuals[1,2]. Allergic conjunctivitis (AC) is one of the common reasons patients present for consultation at eye clinics. The prevalence of ocular allergy is higher in western countries compared to Asia[3] or Africa. It is a localized allergic condition that is frequently associated with rhinitis and occasionally with asthma but often observed as the only or prevalent allergic sensitization[4]. In the age group below 14 years, 44.7% of children with atopy had allergic rhinitis and 61% of them had conjunctivitis but only five percent presented with conjunctivitis alone[5]. Allergic conjunctivitis is classified into seasonal and perennial allergic forms. The seasonal type is the commonest form and is usually due to the effect of seasonal allergens like pollens, grass etc. The perennial form is less common and is due to chronic exposure to allergens like dust mite allergens, animal dander etc. While the perennial allergic form causes symptoms throughout the year, it is less prevalent and milder than the seasonal but more persistent. The initial phase is characterized by mast cell activation and sensitization while afterwards there is recruitment of inflammatory cells to the site of allergic inflammation resulting in tarsal papillae and other changes seen in the affected individuals. The symptom of AC includes eye itching, redness, tearing, foreign

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body sensation, ocular discomfort, ocular swelling and mucoid eye discharge[6].

In allergic conjunctivitis, the visual acuity is usually normal. However, in more severe forms of the disease like vernal keratoconjunctivitis (VKC) or atopic keratoconjunctivitis (AKC), there may be visual impairment secondary to corneal damage or curvature change[7]. Chronic allergic eye disease should be differentiated from the non allergic eosinophilic conjunctivitis (NAEC)[8,9]. Diagnosis of allergic conjunctivitis is mainly clinical. However, conjunctival swab for microscope, culture and sensitivity to differentiate it from other causes of conjunctivitis may be needed occasionally. The treatment of allergic conjunctivitis may be medical (uses of antihistamines and mast cell stabilizers) or surgical (tarsectomy for cobblestone papillae and debridement, superficial keratectomy, excimer laser phototherapeutic keratectomy and amniotic membrane transplantation to enhance re-epitheliazation for severe shield ulcers resistant to medical treatment). Patients with AC have high incidence of refractive error, keratoconus, keratoglobus, and pellucid marginal degeneration[10].

The aim of this study is to determine the pattern of presentation of allergic conjunctivitis in this locality and to create awareness among health professionals and the general public.

METHODS

This was a hospital based cross sectional study conducted over four month period from 1st January – 29th April 2014. It involved all the patients who presented at eye clinic of Federal Medical Center Birnin Kebbi on account of ocular itching and met the study inclusion criteria. The study was conducted using a self explained structured questionnaire designed for the study. The information obtained from patients included socio-demographics (age, sex, occupation, tribe, level of education), presenting complaint, history of asthma, past uses of corrective spectacle and associated eye condition. Others include family history of asthma, atopic eczema and ocular allergy.

All patients had comprehensive ocular assessment including visual acuity (VA) for both distance and near whenever possible. Distance visual acuity was determined by the researcher using a LogMAR and picture visual acuity charts at a distance of 6 meters. Near acuity was determined using a Jaeger acuity chart. The patients' anterior segments were examined using Keeler slit lamp biomicroscope. The posterior segment was assessed using a Keeler direct ophthalmoscope or 90 DS indirect ophthalmoscope where necessary. The type of ocular allergy in these patients were vernal conjunctivitis and acute allergic rhinoconjunctivitis. Patients were diagnosed as allergic condition clinically (history and examination) and no investigation was done in any of the patient for allergy. Aggravating factors for ocular allergy in these patients were pollen (grass and tree) and dust.

INCLUSION CRITERIA

1. Patients with features of conjunctivitis

EXCLUSION CRITERIA

1. Individuals who had co-existing ocular conditions such as glaucoma, age related macular degeneration, uveitis and cornea disease.
2. Patients who have had previous ocular surgery operation in either eye.
3. Patient or parent/caregiver who did not give consent for this study.

The data was doubly-entered and analyzed by SPSS18.0 software statistical package (2006 Statistical Package for the Social Sciences, Chicago, Illinois, USA). Analysis was done using simple frequency proportions and chi square test for significance. *P*-values < 0.05 were considered statistically significant.

The study protocol was reviewed and approved by the institutional review board of Federal Medical Center Birnin Kebbi, Nigeria. The study was conducted in accordance with the tenets of the Declaration of Helsinki as revised in 2000.

Informed signed or thumb printed consent were also obtained from the individual patient or parent/caregiver prior to the administering the questionnaires.

RESULTS

Of 200 patients presented with conjunctivitis during the study periods 163 (82%) patients were due to allergic conjunctivitis. There were 80 males and 83 females with M:F 1:1.04 and mean of 19.7 ± 14 years SD. And age ranges from 1 year-62 years. Majority of the patients were within the age groups of 17 years-33 years (43.6%), followed by 0-16 years (42.3%). Table 1 shows age and sex distribution of the patients. Most of the patients presented with combine itching and redness 102 (62.3%), followed by itching alone 25 (15.3%) and mucoid eye discharge 14 (8.6%). Table 2 shows presentation of the patients. Fifty-four (33.1%) of the patients never experienced symptoms of ocular allergy

before however, out of the remaining 109 patients 53 (32.5%) experienced ocular allergy symptoms in the last 3 months – 6 months before presented at our hospital. Most of the patients 161 (98.8%) were treated with medication, while only two patients had surgical intervention (cornea ulcer debridement) Table 3.

Only 10 patients had ocular complication following allergic conjunctivitis (8 cornea scarring and 2 mechanical ptosis), Table 4. Eighteen (11%) of the patients were a known asthmatic. However 73 (44.8%), 87 (53.4%) and 79 (48.5%) of these patients have family history of asthma, atopy and ocular allergy respectively, Table 5. Fourteen (8.6%) patients were newly diagnosed with refractive error. While, 22 (13.5%) patients have been using corrective glasses before presentation at our hospital and no case of cornea ectasia was recorded.

Table 1: Age and Sex distribution of the patients

Age in group (years)	Sex		Total
	Male	Female	
0-16 years	44	25	69
17-33 years	26	45	71
34-50 years	10	9	19
50+ years	0	4	4
Total	**80**	**83**	**163**

Table 2: Patients' presenting complaint

Complaint	Frequency	%
Itching	25	15.3
Redness	1	0.6
Mucoid eye discharge	14	8.6
Foreign body sensation	2	1.2
Photophobia	12	7.4
Ocular swelling	7	4.3
Itching and redness	102	62.6
Total	**163**	**100**

Table 3: Treatment of ocular allergy in the study population

Treatment	Number	%
Anti histamines	69	42.3
Mast cell stabilizers	15	9.2
Steroid	4	2.5
Anti histamines + mast cell Stabilizers	73	44.8
Surgical	2	1.2
Total	**163**	**100**

Table 4: Complication of ocular allergy in the participants

Ocular complication	Number	Percentage
Cornea opacity	8	4.9
Mechanical ptosis	2	1.2
None	153	93.9
Total	**163**	**100**

Table 5: Family history of ocular allergy, atopy and asthma among respondent

Family history	Number			Percentage		
	Allergy	Atopy	Asthma	Allergy	Atopy	Asthma
Positive	79	87	18	48.5	53.4	11
Negative	84	76	145	51.5	46.6	89
Total	**163**	**163**	**163**	**100**	**100**	**100**

DISCUSSION

In our study allergic conjunctivitis (AC) is the commonest (82%) type of conjunctivitis seen at our centre similar to previous studies[10-16]. However this higher prevalence may be due to dry season in our community between February and April of the study period.

In the present study AC was commoner in females similar to previous studies in Gambia[11], Uganda[12] and Nigeria[13,14] but different from others studies where males were more preponderant[15, 18]. The variation between sexes may be due to the effect of sex hormones [19]. Majority of the patients were within the age groups of 17 years-33 years (43.6%), followed by 0-16 years (42.3%). This was different from most of the previous studies who reported a preponderance of AC in age group of 16 years and less[11-13]. The difference might be due to more adolescents attending our eye clinic. Conjunctival degeneration (pterygium and pinguecula) [41 (25%)] were the commonest ocular co-morbidity seen in our patients followed by refractive error [14 (8.6%)]. This was different from the findings of Keziah[13] who reported refractive error incidence of 15.4% and Conjunctival degeneration (pterygium and pinguecula) 3.6%. A higher incidence of conjunctival degeneration in our study might be due to the dusty nature of our study environment and the higher prevalence of ocular allergy observed in the middle age group. Majority of the patients [106 (62.3%)] presented with symptoms of ocular itching and redness. This is similar to findings by Azonobi et al[6] in Bayelsa State. Other complaints such as mucoid discharge, photophobia and ocular swellings were less commonly encountered. No patient complained of body itching in our study but it was reported by Keziah[13].

Most of the patients [161 (98.8%)] were treated with medication, while only two patients had surgical intervention (cornea ulcer debridement). This is due to the good respond of this condition to medication (antihistamine and mast cell stabilizer). Only 10 patients had ocular complication following allergic conjunctivitis (eight cornea scarring and two mechanical ptosis). This explains the sequel of this condition if not properly managed.

In this study 18 (11%) of the patients with allergic conjunctivitis were known asthmatics. This is lower than 56% found by Gradman et al.[20]. The difference may be due to environmental and hereditary factors. However 73 (44.8%), 87 (53.4%) and 79 (48.5%) of these patients have family history of asthma, atopy and ocular allergy respectively. This observation suggests a hereditary relationship between these conditions and ocular allergy.

CONCLUSION

Allergic conjunctivitis is very common in the active age group of this population. Health education and prompt treatment is necessary to forestall quality of life and economic consequences.

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