



## PREVALENCE OF ALLERGIC CONJUNCTIVITIS AMONG SCHOOL CHILDREN ATTENDING EYE OUTPATIENT DEPARTMENT IN GOVERNMENT MEDICAL COLLEGE JAMMU

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Conflicts of Interest: Nil

### ABSTRACT

**AIM:** Allergic conjunctivitis is often underdiagnosed and consequently undertreated condition in children as well as in adults except when it is severe. The aim of the present study is to assess the prevalence allergic conjunctivitis among children attending EYE OPD in GMC Jammu.

**MATERIAL AND METHOD:** We conducted an observational study involving all the new cases presenting to the outpatient department over a 6-month period from 1st November 2018 to April 30th, 2019. 1310 children of  $\leq 16$  years of age who presented to Out Patient Department (OPD), Department of Ophthalmology, Government Medical College (GMC), Jammu were enrolled. The children were divided into three groups: 0-5 years, 6-12 years and 13-16 years for evaluating the allergic conjunctivitis in different age groups. Routine ophthalmic examination including the Snellen's chart, refraction, tonometry, slit-lamp examination of the anterior segment and fundus examination was done. Data on age, sex, final diagnosis was recorded after taking the verbal consent and analysed in detailed.

**RESULTS:** A total of 1310 patients were seen during this period, out of which 708 (54.04%) were males and 602 (45.95%) were females. It was seen that allergic conjunctivitis was present in 318 (24.27%) among 1310 children.

**CONCLUSION:** Public health measures may be required to help reduce the burden associated with this condition. Health professionals working in community can play a very important role in creating awareness amongst the general public regarding signs and symptoms of allergic conjunctivitis; and they can also identify patients having this condition.

### Introduction

Allergic conjunctivitis (AC) is an inflammation of the conjunctiva due to allergy.(1, 2) AC includes more widespread non-sight threatening conditions like seasonal allergic conjunctivitis (SAC), perennial allergic conjunctivitis (PAC) and giant papillary conjunctivitis (GPC) to less prevalent sight-threatening ones such as vernal keratoconjunctivitis (VKC) and atopic keratoconjunctivitis (AKC).(3)

Allergic diseases are an important public health issue due to their high frequency and socioeconomic burden. Allergic conjunctivitis is supposed to be the most common allergic

disorder. The International Study of Asthma and Allergies in Childhood (ISAAC) found that the prevalence of allergic diseases in children aged 6 and 14 years varies significantly from 0.3% to 20.5%, but is gradually increasing.(4, 5)

Generally, Allergic conjunctivitis is a typically mast cell mediated type 1 hypersensitivity reaction. Exposure of sensitized, IgE coated mast cells to airborne allergens is the primary irritating stimulus.(6) Chain reactions in the plasma membrane of mast cells lead to membrane rupture and release of histamine and further release of cytokines, prostaglandins and platelet-activating factor with other mediators. These mediators together with many other cell

mediators stimulate the proliferation of fibroblasts and recruitment of various cell types to the conjunctiva, all of which result in development of papillae as seen in patients with vernal keratoconjunctivitis.(7)

It is difficult to find out a single cause for AC because it is believed to result from an interplay of varying causative factors like genetics, air pollution in urban areas, pets, warmer climates and early childhood exposure.(8) Pollens are responsible for seasonal conjunctivitis associated with hay fever and tend to recur at the same time each year in those with atopy. Several allergens such as house mites, animal dander and cosmetics may result in perennial conjunctivitis. Symptoms occur all year round and may be worse in the mornings. Giant papillary AC may occur as a result of exposure of allergens such as contact lenses, sutures and prostheses following eye surgery. Reactions to eye drops, preservatives in the eye drops and cosmetics could give rise to contact dermatitis. These tend to resolve once the irritant is removed.

Symptoms of AC such as ocular discomfort, itching, redness, tearing, pains, burning sensation, lids and conjunctival edema together with foreign body sensation would almost invariably affect academic performance and the vision-oriented quality of life of children resulting in morbidity and loss of productivity.(9)

Very few hospital-based studies are available on childhood ocular morbidity. Information obtained from this set up might be useful in improving the existing primary eye care facilities consequently reducing the prevalence of childhood morbidity. The present study was conducted with the objective to determine the prevalence of allergic conjunctivitis among the children attending in the outpatient department (OPD) of an Ophthalmology GMC Jammu of Northern India.

## **MATERIAL AND METHOD**

An observational study was conducted at Government Medical College, Jammu. The study

period was 6 months from 1st November 2018 to April 30th, 2019. All children  $\leq 16$  years of age, reporting to the Eye outpatient department (OPD) for the first time were included in the study. 1310 children of  $\leq 16$  years of age who presented to Out Patient Department (OPD), Department of Ophthalmology, Government Medical College (GMC), Jammu were enrolled. The children were divided into three groups: preschool (0-5 years), school going (6-12 years) and older (13-16 years) for evaluating the allergic conjunctivitis in different age groups in whom routine ophthalmic examination including the Snellen's chart and refraction was done. Detailed anterior segment examination was done by both torch - light and slit - lamp, specially keeping in mind the effects of allergic conjunctivitis. Intraocular pressure was recorded. Only the one main ocular complaint for which patient had come to OPD was taken. Allergic conjunctivitis was diagnosed by symptoms of bilateral itchiness and either burning sensation, tearing,ropy/clear mucinous discharge, or photophobia. The ocular signs hinged on the presence of at least two of these: papillae, redness, brownish limbal hyperpigmentation, visible limbal tranta spots and chemosis(10)

Data on age, sex, final diagnosis was recorded after taking the verbal consent and analysed in detailed. Collected data were analyzed by computing proportions.

There are four units in the Ophthalmology Department, out of these four units Unit II was selected by simple random sampling. All the patients less than 16 years of age attending the unit II OPD during the study period constituted our study population. Informed verbal consent was taken from guardians of all children attending OPD for inclusion in the study.

## **RESULT**

Our study was conducted in Eye OPD, Government Medical College, in Jammu district, of north India. A total of 1310 children were included in the study. Out of 1310 children, allergic conjunctivitis was present in 318 children.(24.27%)It was found to be the 2<sup>nd</sup> most

common ocular morbidity following the refractive error in children. Among 318 children of allergic conjunctivitis, 170(53.45%) were male and 148 (46.54%) were female.(Table 1) This showed slight preponderance of different ocular diseases in males as compared to female children. The distribution pattern of allergic conjunctivitis in different age groups has been shown in Table 2. There were 27 (8.49%) children ≤ 5 years of age, 163(51.25%) children 6-12 years of age and 128 (40.25%) children of 13-16 years in the study group. Majority, that is, 163(51.25%) of the patients were in the 6-12 years age group.

**Table 1: Sex distribution of allergic conjunctivitis**

Sex	Male(%age)	Female(%age)
No. of patients	170 (53.45)	148 (46.54)
Total	318	

**Table 2: Age and sex wise distribution of allergic conjunctivitis**

Age (years)	Male (%)	Female (%)	No. of patients
0-5	16(5.03)	11(3.45)	27(8.49)
6-12	93(29.24)	70(22.01)	163(51.25)
13-16	61(19.18)	67(21.06)	128(40.25)
Total	170(53.45)	148(46.54)	318

**DISCUSSION**

AC in childhood is important reasons for medical consultations. Ocular morbidity in children affects learning ability, adjustment in school, and personality. Numerous reports indicate that the incidence and prevalence of allergic conditions have increased dramatically all over the world during the past 40 years and they continue to rise. This is because of rapid growth,

development, increased air pollution and dry-eye syndrome. Dust, smoke, sunlight pollen/grass/weed, dandruff, dry eyes and cream (cosmetic) were the reported precipitating factors for allergic conjunctivitis.

The problem of allergic conjunctivitis is associated more with its frequency (episodes) than its severity; as, a single episode may not be very severe but repeated episodes might be weakening for patients. Although the burden of allergic conjunctivitis is high, ranging from 15 to 20%, it is frequently unnoticed by patients and this condition remains under diagnosed in a majority of the population. Keratopathy which includes conditions such as corneal scar , corneal abrasion and moorens’ ulcer, Delens’ ulcer, pannus and keratoconus are the associated comorbidities of allergic conditions that eventually could lead to visual impairment in patients with AC.

The prevalence of allergic conjunctivitis is reasonably high. In our study, amongst children of age group children 6-12 years of age, prevalence of allergic conjunctivitis was found to be 51.25%.Hall *et al.*, discovered that about 25% of children were suffering from AC in a tertiary referral paediatric eye clinic in Tanzania(11), which is comparable with our studyas the prevalence of allergic conjunctivitis was present in 318 children among 1310 children.(24.27%) Isaac *et al.*, found 40% in an out-patient eye unit in Ghana with conjunctivitis.(12) Abah *et al.*, in Zaria school children found AC in (7.3%) to be the commonest ocular disorder among the children.(13)

Wade *et al.*, in Gambia(14), Kawuma in Uganda.(15) in their study observed more female preponderance of AC than males. This is in contrast to other studies in which male preponderance has been seen.(11, 16, 17) Also, in our study slight male preponderance of AC has been seen.

Meanwhile, in the community-based studies among school children, Kumah *et al.*(18)and Abah *et al.*(13) found the prevalence of AC to be 12.1 % and 7.3 % respectively. The higher

prevalence of AC in the current study is probably because of its timing in the dry season (November to April) where there is usually dust and pollen in the air.(14)

The limitations of our study are that 1) small sample size 2) short study period 3)we investigated the prevalence of current allergic disease using the current allergic symptoms. Our method could not reflect the accurate prevalence of allergic diseases among the children.

### CONCLUSION

Allergic conjunctivitis is a leading cause of absenteeism from school due to its discomfort, chronicity and recurrence. Preventative measures and prompt treatment can bring symptoms under control and prevent potentially blinding complications, loss of concentration and absenteeism from school. Patients should be made aware of the results of overlooking their ocular health; they can also be educated about simple cost effective measures like cold compress for getting relief from their symptoms.

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