

THE INFLUENCE OF CLIMATIC AND SOCIOECONOMIC FACTORS ON THE OCCURRENCE OF ALLERGIC CONJUNCTIVITIS AMONGST PRIMARY SCHOOL PUPILS IN OWERRI URBAN, NIGERIA

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ABSTRACT

This study investigated some aspects of climatic and socioeconomic factors, which may influence the occurrence of allergic conjunctivitis among primary school pupils. A sample population of 150 pupils aged 5-15 years was randomly selected from different schools. The subjects were drawn from pupils of various classes and socioeconomic background. Questionnaire and clinical examination were used. The result revealed that climatic factor influences the occurrence of allergic conjunctivitis, 48.9% during harmattan season and 26% during rainy season. Occurrence in females was 59.3% compared to 32% in males. Pupils of the parents who were artisans had 52% while those whose parents were professionals had 18.2%. Pupils within the age of 9-12 had 67.9%, while the age group 13-15 had 13.9%. Clinical sign on the conjunctiva only were seen on 67.9% of the pupils while 1.4% had clinical sign on the conjunctiva, eyelid and cornea.

KEYWORDS: Climatic factor, Socioeconomic factor, Pupils, Allergic conjunctivitis.

INTRODUCTION

The concept of illness is an interaction between external factors and internal capacity for resistance of an organism in question. In the same vein, allergy has been defined as an altered or exaggerated susceptibility to various foreign substances or physical agents, which are harmless to great majority of individuals; otherwise it is sensitivity or intolerance which many people find harmless¹

Randolph and Moss² has defined allergy as a condition of unusually sensitive to something eaten, breathed in, or touched in a way that causes pain or suffering. It could be as a result of an altered reactivity of an animal following exposure to a foreign antigen, including immunity and hypersensitivity. Gold and Peacock³ restricted allergy to hypersensitivity, which may be associated with the development of immune response to foreign substance.

Theodore⁴ classified ocular allergies into three categories, namely immediate anaphylactic response to pollen, inhalants, animal protein or food and delayed response (24-48 hours) due to microbial infection, drugs, cosmetics and other chemicals. These lead to different forms of conjunctivitis including catarrh and phlyctenular which are sight threatening. Muir⁵ opined that allergy could be explained solely in terms of immunologic theory, which can affect any part of

the body, even the conjunctiva.

Allergic conjunctivitis is the result of antigen-antibody reaction in the conjunctiva leading to redness and swelling^{6,7}. An antigen may either be endogenous or exogenous⁸.

Though allergic conjunctivitis is non-contagious in itself but it imposes emotional disturbance and anxiety to the sufferer. Allergic conjunctivitis is usually characterized by sudden hyperemia, edema of conjunctiva, photophobia, sneezing, nasal congestion, blurring of vision, intense irritation, profuse tearing, slightly raised round nodules in the bulbar conjunctiva, itching, thread-like (stringy) mucous discharge, hyperemia and lid swelling^{9,10}.

In case of neglect and mismanagement by use of herbs, urine to the eye, it may lead to blindness and its attendant socio-economic consequences. Epidemiologically, conjunctivitis presents a lot of public health problems among the general population⁹.

The objective of this study is to identify the relationship between allergic conjunctivitis and climatic and socioeconomic factors in an urban setting such as Owerri in Imo State of Nigeria.

MATERIALS AND METHODS

The study population of 150 pupils of either sex was drawn from two primary schools in Owerri Urban, Imo State, Nigeria. The pupils were aged 5-

15years. Seventy five (75) pupils were chosen from each school. The children came from parents/guardians of different socioeconomic background. The pupils were separated into various classes and then chosen by random sampling.

The subjects underwent visual acuity (VA) test, external and internal eye examination using standard Optometry procedures. The questionnaire was converted to oral interviews by the researchers; since subjects were children they could not all write their desired responses.

The questionnaire contains 4 parts: personal data, medical history particularly on allergies, dietary habit and social history of the pupil. The results obtained were analyzed using tables, and percentages.

RESULTS

Considering the occurrence of allergic conjunctivitis by gender, females had higher number of 89 (59.3%), compared to males 48 (32%) as shown in table 1. Occurrence of allergic conjunctivitis was high during harmattan season, 67 (48.9%), non-seasonal had 44 (32.1%) while rainy season had the least occurrence 19 (26%) as shown in table 2.

Table 3 showed that majority of the pupils 93 (67.9%) had clinical sign on the conjunctiva only, compared to 42 (30.7%) that had clinical sign the conjunctiva and eyelid, while 2 (1.4%) had clinical sign on the conjunctiva, eyelid and cornea. Pupils within the age of 9-12 had the highest number of allergic conjunctivitis of 93 (67.9%), followed by those within the age group of 5-8, 25 (18.2%) while age group 13-15 had the least number of 19 (13.9%) as shown in table 4. In considering the occupational status of parents of the pupils, those whose parents were artisans had the highest

number of 77 (56.2%) followed by civil servants 35 (25.6%) while professionals had 25 (18.2%; see table 5).

DISCUSSION

The climate, culture and occupation of inhabitants of any community have significant impact on the incidence of allergic conjunctivitis. The high occurrence of allergic conjunctivitis in the subject between 9-12 year (table 4) was because they get in contact with allergens in the environment as they play. The finding is in agreement with Gold and Peacock³, Duke ó Elder⁸, Frazier¹, Randolph and Moss², Smolin and O'Connor¹¹, who said that allergic conjunctivitis is a disease more prevalent in childhood,

The seasonal manifestation of allergic conjunctivitis as seen in table 2 was attributed to dust and pollen in atmosphere. Gold and Peacock³, Coutu¹², Clifford⁹, Smolin and O' Connor¹¹, Mcdowell¹³, in their studies revealed the highest occurrence of allergic conjunctivitis during harmattan to be due to extreme cold and dust in the atmosphere.

There was high occurrence of allergic conjunctivitis in female than males (table 1) because of hormonal release. The socio-economic status background of a child was found to influence the occurrence of allergic conjunctivitis. Those with low nutritional status or from parents with low income had high frequency of this allergy as supported by Evans¹⁴, Randolph and Moss², Uddoh¹⁵ due to poor hygiene common with people of that class. One therefore concludes that establishment of health services in the schools and reorientation of all parties involved (parents, teachers, health practitioners and government) will help in reducing the occurrence of allergic conjunctivitis.

TABLE 1: OCCURRENCE OF ALLERGIC CONJUNCTIVITIS BY GENDER

	Male	% of Male	Female	% of Female	Total	% Total
Present	48	32.0	89	59.3	137	91.3
Absent	6	4.0	7	4.7	13	8.7%
Total	54	36.0	96	64.0	159	100%

TABLE 2: INFLUENCE OF CLIMATIC CONDITION ON THE OCCURRENCE OF ALLERGIC CONJUNCTIVITIS

Seasons	NO.	Percentage
Rainy season	26	19.0%
Harmattan	67	48.9%
Non-seasonal	44	32.1%
Total	137	100%

TABLE 3: OCULAR FINDINGS ON EXTERNAL EXAMINATION

Clinical Sign	Pupils with History of allergic conjunctivitis	Percentage
Conjunctiva only	93	67.9%
Conjunctiva and eyelid only	42	30.7%
Conjunctiva, eyelid and cornea	2	1.4%
No clinical sign of Allergic conjunctivitis	Nil	Nil
Total	137	100%

TABLE 4: OCCURRENCE OF ALLERGIC CONJUNCTIVITIS BY AGE OF RESPONDENTS

Age	NO	%
5-8	25	18.2%
9-12	93	67.9%
13-16	19	13.9%
Total	137	100%

TABLE 5: OCCUPATIONAL STATUS OF PARENTS OF RESPONDENTS

Occupation	NO	%
Professional	25	18.2%
Civil servant	35	25.6%
Artisan	77	56.2%
Total	137	100%

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