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# *Childhood Asthma in Benin*

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**Summary**

**Oviawe O. Childhood Asthma in Benin.** *Nigerian Journal of Paediatrics* **1986; 13:141.** Clinical and laboratory studies of bronchial asthma in 145 children seen at the University of Benin Teaching Hospital between December 1983 and November 1985, are described. There was a preponderance of males while the mean age of onset of asthma was 2.5 years. Precipitating factors of attacks were present in 77% of the cases. Other atopic diseases were present in 27% while there was a positive family history of asthma in 55%. Of the 64 cases who had skin tests performed, 86% reacted to one or more allergens. It is concluded that the features of childhood asthma in Benin are similar to those reported elsewhere.

## Introduction

BRONCHIAL asthma is a major cause of chronic chest disease in childhood and remains one of the main reasons for school absenteeism. Futhermore, it is an important cause of financial and emotional strain on families. The clinical spectrum of childhood asthma has been well documented in developed countries[1]. In tropical Africa, few reports on childhood asthma are available and until recently, it was considered an uncommon disease in children[2,3]. In 1975, Warrell *et al*[4] reported that in Zaria, where approximately 96,000 children presented at the outpatients clinic annually, only one child was admitted with severe asthma over a 4-year period, whereas in 1979, Aderele[5] reviewed 200 cases of childhood asthma seen over a 2½-year period in Ibadan.

Since it has been established that there are wide variations in the pattern of asthma,[1,2] and that these may be dependent on the geographical location, there is need to determine the patterns of asthma for different communities. The present study describes the pattern of childhood asthma in Benin and its environ.

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## Materials and Methods

The study covered a period of 2 years (December 1983–November 1985). A record was kept of all the patients referred with a diagnosis of bronchial asthma, from various paediatric clinics and wards, the children emergency room, the general practice clinic of the University of Benin Teaching Hospital (UBTH) and from other hospitals and clinics in Bendel State, to the paediatric chest clinic of the UBTH.

milk during infancy. The 2 subjects (1 male, 1 female) were never fed breast milk. Of the 145 cases, 75 (51.7%) were fed formula milk within 48 hours of birth as compared with 26 (17.9%) who were fed breast milk within the same period. Four patients (2.8%) were not fed at all during the first 24 hours of life while 40 (27.6%) were fed only glucose water during the same period. On the average, breast milk was given for 9 months as against 14.6 months for formula milk.

*Precipitants of asthma*

Precipitating factors were identified in 112 (77.2%) cases. As shown in Table III, upper respiratory tract infection (URTI) was the commonest factor identified and was commoner in the younger age group, while domestic pets constituted the least provocating factor. Nocturnal onset of asthmatic attacks was reported in 83 (57.2%) cases. Attacks were more frequent during the rainy season in 55 (38%) cases and during the dry season in only 5 others (3.4%). In the remaining 85 cases, the asthma was unaffected by the season.

*Severity of asthma*

Of the 145 patients, 107 (73.8%) were classified as having severe asthma; 12 (8.3%) moderate and 23 (15.9%), mild attacks. In 3 cases, the frequency of attacks could not be accurately determined. The mean duration of each attack was 4 days (range 1-21 days) and was similar for both male and female patients. School absenteeism was a major problem in 9 of 95 cases who were attending school.

*Personal history of atopic disease*

There was a positive history of atopic disease in 39 (26.9%) cases. As shown in Table IV, allergic rhinitis was the most commonly associated condition in these patients; eczema was present n 14 (9.7%) cases. Some of the patients presented with multiple atopic diseases as demonstrated by 6 subjects who each, presented with 3 of such diseases.

TABLE III

*Major Precipitating Factors in 145 Cases of Asthma*

| *Factors* | *No of Cases* | *% of Total* |
|---|---|---|
| URTI | 54 | 37.2 |
| Cold (weather) (bath ) (drink) | 52 | 35.9 |
| Exercise | 34 | 23.4 |
| Dust | 13 | 9.0 |
| Specific foods | 10 | 6.9 |
| Emotion | 8 | 5.5 |
| Oil fumes | 6 | 4.1 |
| Insecticide | 2 | 1.4 |
| Fan | 2 | 1.4 |
| Animal (cat) contact | 1 | 0.7 |

Multiple factors precipitated asthma in some cases.

URTI = Upper repsiratory tract infection.

TABLE IV

*Associated Atopic Diseases in 145 Asthmatic Children*

| *Disease* | *No of Cases* | *% of Total* |
|---|---|---|
| Allegric rhinitis | 22 | 15.2 |
| Vernal conjunctivitis | 15 | 10.3 |
| Eczema | 14 | 9.7 |
| Urticaria | 2 | 1.4 |

Some patients had multiple atopic diseases.

*Family and social history*

There was a positive family history of atopic disease in 79 (54.5%) of the 145 patients; 70 of these were parents or siblings suffering or who had suffered from asthma, 7 from allergic rhinitis and 2 from eczema. Only 14 fathers were smokers and smoked on the average, 4 cigarettes per day.

*Presenting symptoms*

The commonest symptoms were breathlessness (100%), wheezing (97.2%) and cough (95.9%). Other symptoms included insomnia, anorexia, excessive sweating and tightness in the chest which was complained of by the older children. Permanent chest deformity was a major complaint in 16 (11%) cases; barrel shaped in 9 and depressed in the remaining 7 cases.

*Skin sensitivity tests*

Skin tests were performed in 64 cases with a selected range of 16 allergens. Fifty five (86%) of the 64 cases reacted to one or more of the allergens. Of these, the commonest positive reactions were to house dust mite (*D pteronyssinus*) (49%), house dust (36%) and grass pollens (18.5%). Hypersensitivity to specific foods occurred in only 2 (3%) cases.

*Blood eosinophilia and stool parasites*

The mean absolute eosinophil count in 61 cases was 876 (range 173–2,220) per $mm^3$. This compared with a mean of 344 (range 52–840) eosinophils per $mm^3$ in a group of 45 controls. Ascaris ova were present in the stool of 96 cases, hookworm ova in 4 cases, trichuris ova and strongyloides larva in 1 case each. Of the 61 asthmatic subjects who had eosinophil counts performed, 46 had ova of ascaris in the stool and had an absolute eosinophil count (mean $\pm$ SD) of $1,491 \pm 576$ per $mm^3$, whereas the other 15 subjects without demonstrable ascaris ova had an absolute eosinophil count (mean $\pm$ SD) of $577.5 \pm 181$ per $mm^3$; this difference was significant ($p < 0.05$).

## Discussion

Many of the features of asthma in children found in this study are similar to those reported from Ibadan[5] and other cities in developed countries[8, 9]. The disease affected more males than females; the peak age of onset was before 5 years and associated atopic diseases in the patients and their families were common. A high proportion of the cases demonstrated skin hypersensitivity to one or more allergens and there was significant blood eosinophilia.

One major dissimilarity with these other reports is the relatively high proportion of cases with severe asthma in the present study. On the basis of frequency of asthmatic attacks alone, 73.8 per cent of the patients were classified as having severe asthma. This contrasts with most reports in the literature where about three quarters of the asthmatic population are reported to have mild asthma[10]. The possible explanation for this difference is that the parents in the present study may have overreported the frequency of the asthmatic attacks. Furthermore, the severity of asthma, as assessed in this study, correlated negatively with other factors such as school absenteeism, pigeon chest deformity and prolonged duration of attacks which are also known to be indicative of severe asthma[10]. It is for these reasons that respiratory function tests are being used to objectively assess the severity of asthma[11]. In the absence of these reliable respiratory function tests, as often occurs in most developing countries, the use of the 'diary card' is considered a reasonable method of assessing the severity of asthmatic attacks in childhood.

Prior to 1977, childhood asthma was considered a rare disease in Africa[2–4] and various reasons were advanced to explain this reported rarity. These included the beneficial effect of early onset and prolonged breast feeding, the delayed supplementation of cow's milk and as Cookson[12] suggested, the protective effect of non-specific parasitic IgE. However, in 1977, Carswell *et al*[13] reported the incidence of asthma to be 7.8%

among Tanzanian children, and in 1979, Aderele[5] reviewed 200 asthmatic children found in Ibadan over a $2\frac{1}{2}$-year period. These reports and the results of this present study confirm that asthma in children can no longer be considered rare in Africa. The possible reasons for this latter trend include better awareness of the disease, improved living conditions and the deleterious effects of early onset and prolonged use of cow's milk supplement. In this connection, Bazaral *et al*[14] have suggested that improved living conditions lead to the emergence of atopic diseases. If this hypothesis is true, the prevalence of childhood asthma and other atopic diseases can reasonably be predicted to increase with time in Nigerian communities and other socially emergent societies.

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