CLINICAL CHARACTERISTICS OF DERMATOPHYTOSIS AMONG CHILDREN IN A NIGERIA POPULATION; THE ROLE OF HIV/AIDS

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ABSTRACT

Background: Dermatophytosis is a common superficial mycosis. It affects virtually every child at one stage or the other, but the disease may be more frequent in individuals with immunocompromising conditions. The typical characteristic of the rash is an annular, popular rash with a healing centre and an active periphery that may have an erythematous base and it occurs in different parts of the body.

Aims: To elicit the clinical characteristics of dermatophytosis among children with HIV/AIDS.

Methods: Two hundred each of HIV sero-positive and sero-negative children were evaluated for dermatophytosis (and its clinical types) and the possible role of HIV was examined.

Results: Thirty-two (16%) sero-positive and 24(12%) sero-negative children had dermatophytosis (P = 0.086). Tinea capitis was the most prevalent among the sero-positive and was the only type seen among the sero-negative subjects. Dermatophytosis was significantly more prevalent among those with more advanced clinical stage of HIV (p = 0.000). Children in 5 ï 12 year age bracket were more affected in both groups.

Conclusion: Tinea capitis was the most frequent type of dermatophytosis in the study, followed by tinea corporis. Children in 5 ï 12 year age bracket were more affected in both groups. Occurrence of dermatophytosis was significantly influenced by the stage of HIV disease but not by HIV status.

Keywords: Characteristics dermato-phytosis HIV/AIDS children in Nigeria

INTRODUCTION

Dermatophytosis is a common superficial mycosis. Although its clinical course is often considered trivial, this disease frequently becomes refractory and recurrent. Variable prevalence has been reported among healthy school children[1,2]. Its clinical importance derives from the morbidity caused by its itch-scratch phenomenon, the resultant skin disfiguration, its propensity for secondary bacterial infections and in the event of chronicity, resultant alopecia and scarring. It affects virtually every child at one stage or the other and the lesion is usually self limiting but may undergo a chronic relapsing course during illness such as HIV/AIDS and undernutrition. The disease may also become invasive and atypical under such circumstances[3].

The typical characteristics of the rash is an annular, popular rash with a

healing centre and an active periphery that may have an erythematous base.

It is common in wet seasons and its transmission is encouraged by overcrowding and poor environmental conditions[4]. It commonly affects the feet (athleteôs foot), glabrous skin (tinea corporis, ring worm), and scalp (tinea capitis). It may also affect the groin (tinea cruris), nails (tinea unguium), hands (tinea manum) and face (tinea faciei), especially during immunocompromise. In one study tinea corporis was the most frequent, followed by tinea capitis[5]. Compared to immunocompetent children, dermato-phytosis may manifest unusual presentation and could also become refractory to therapy when children are immunocompromised[6]. Don *et al*. however noticed similarity in prevalence of the disease in HIV sero-negative and sero-positive children[7].

Method

We declare that this study was assessed by the University of Benin Teaching Hospitalôs ethical committee and ethical clearance was obtained prior to the study. Informed consent was also obtained from the parents/guardians. Two hundred HIV positive children aged 18 months and 16 years presenting at the paediatric outpatient of the University of Benin Teaching Hospital, Benin City were recruited consecutively between June 2008 and May 2009. HIV was diagnosed based on suggestive clinical features and positive spot test for HIV antibodies done after obtaining assent and informed consent. The subjects (where feasible) or their parents/guardians were counselled and a semi structured questionnaire was interviewer-administered. Information on the questionnaire included the childôs biodata, presence of rash, its site and duration. Two hundred age and gender matched HIV sero-negative children were also evaluated.

A complete dermatologic examination of the head, neck, face, trunk and extremities was performed on each subject. Subjects were grouped into those with lesions on the head, face, trunk, extremities, groin or nails.

Results

Among the two hundred HIV positive children that were studied, 32(16%) had dermatopytosis (these cases constituted 25% of all the lesions seen among HIV sero-positive children). Fifty-six percent and 43.7% of the lesions were seen among the males and females respectively (male/female prevalence ratio 1:3:1). Thirty-one percent of the lesions occurred among undergraduate fives, while 50.0% and 18.7% occurred respectively among 5 ï 12 year old and adolescent children. There were 28/40, 10/40 and 2/40 cases of tinea capitis, tinea corporis, and tinea unguium respectively. Eight children had multiple types of dermatophytosis. Majority of the cases of tinea capitis occurred among 5 ï 12 year old while the two cases of tinea unguium were seen among the under fives. This is illustrated on Table I below.

Table I: Dermographic characteristics of subjects and types of dermatophytosis seen*

Characteristics	Total number with Dermatophytosis		Total cases of Tinea Capitis	Total cases of Tinea Corporis	Total cases of Tinea Unguium
	HIV Positive	HIV Negative			
Age					
<5 years	10 (31.3)+	4 (16.7)	8 (28.6)	2 (20.0)	2 (100.0)
5 ï 12 years	16 (50.0)	14 (58.3)	16 (57.2)	4 (40.0)	ï
>12 years	6 (18.7)	6 (25.0)	24 (14.4)	4 (40.0)	ï
Total	32 (100.0)	24 (100.0)	28 (100.0)	10 (100.0)	2 (100.0)
Gender					
Male	18 (56.3)	8 (33.3)	16 (57.1)	4 (40.0)	ï
Female	14 (43.7)	16 (66.7)	12 (42.9)	6 (60.0)	2 (100.0)
Total	32 (100.0)	24 (100.0)	28 (100.0)	10 (100.0)	2 (100.0)

*Although there were 32 children who had dermatophytosis, the total number of time the lesion was encountered was 40 because some of the children had multiple types of tinea.
+Percentage in parenthesis

Six percent of the total number of dermatophytosis were seen in HIV clinical stage 1 disease while 43.7%, 37% and 12.6% was noted among those with HIV clinical disease stage 2, 3 and 4 respectively. Seven percent of tinea capitis occurred among those with stage 1 disease, while 50.0% and 42.9% respectively occurred among those with stage 2 and 3 disease (Table 2).

Table 2: Clinical stage of HIV and occurrence of dermatophytosis*

Clinical Stage of HIV/AIDS	Total number with Dermatophytosis	Total cases of Tinea Capitis	Total cases of Tinea Corporis	Total cases of Tinea Unguium
1	2 (6.3)+	2 (7.1)	2 (20.0)	ï
2	14 (43.7)	14 (50.0)	2 (20.0)	ï
3	12 (37.4)	12 (42.9)	2 (20.0)	ï
4	4 (12.6)	ï	4 (40.0)	2 (100.0)
Total	**32(100.0)**	**28 (100.0)**	**10 (100.00)**	**2 (100.0)**

On the other hand, 20.0% each of tinea corporis occurred in stage 1, 2 and 3 disease while 40% occurred in stage 4. Also, the two cases of tinea unguium occurred in stage 4 disease.

Conversely, dermatophytosis was seen in 24 (12%) of the HIV sero-negative children (this constituted 100% of all the cutaneous lesions seen among this group and all were tinea capitis). Sixteen percent occurred among the under-five, 58.3% among those who were 5.12 years while 25% occurred among adolescents. The male/female prevalence ratio was 1:1 among the

sero-negative children. Occurrence of dermatophytosis was significantly influenced by the stage of HIV (P = 0.000) but not by HIV status (P = 0.086)

DISCUSSION

The prevalence of dermatophytosis in this study was 16% among HIV positive children and tinea capitis was the most frequent, followed by tinea corporis. This value is similar to the 12% prevalence noted among the HIV sero-negative subjects. HIV sero-status did not significantly influence its occurrence. This observation agrees with that of Don *et al*.[7] who noted that the prevalence of the disease was similar among 13 HIV positive children and 12 controls. However, whereas all the cases seen among the controls in this study were tinea capitis there were other topographic forms of dermato-phytosis among the HIV sero-positive children. Nevertheless, tinea capitis was still the predominant type among the later. These observations may suggest that although dermatophytosis may be common in both HIV positive children as well as normal children, occurrence of types other than tinea capitis may be a pointer to the presence of HIV. However, some authors have reported tinea corporis among normal children and tinea capitis was also the most frequent in their study[8-10]. An author has suggested that the increased frequency of tinea capitis compared to other forms of dermatophytosis could be due to the exposed nature of the head which could in turn ease the transmission of the disease[8].

The predominant age groups affected among the HIV positive children was age 12 years and below, whereas HIV negative counterparts between 5 ï 12 years were mostly affected. In concert, tinea capitis, tinea corporis exhibited highest frequencies among the subjects within the 5 ï 12 year age bracket. This may not be surprising as dermatophytosis is more prevalent in prepubertal children because of the low levels of inhibitory cutaneous free fatty acids which is usually produced by adult skin[10]. Howbeit, one could presume that immunodeficiency may also explain an increased frequency of the disease (and other opportunistic infections) among younger children affected by HIV/AIDS. The significantly higher frequency among those with advanced clinical stages of HIV may suggest the clinical importance of dermatophytosis when found in a HIV infected child. Moreover tinea capitis which was the commonest type was also most prevalent in stages 2 and 3 HIV disease.

CONCLUSION

Tinea capitis was the most frequent type of dermatophytosis among the HIV sero-positive subjects in the study, followed by tinea corporis. Only tinea capitis was seen among their sero-negative counterparts. The predominant age groups affected among the HIV positive children was 12 years and below, whereas HIV negative counterparts between 5 ï 12 years were mostly affected. Occurrence of dermatophytosis was significantly influenced by the stage of HIV disease but not by HIV status.

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