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ORIGINAL ARTICLE

Assessment of the Quality of Life of African Black Children with Atopic Dermatitis by the CDLQI Score

Avaliação da Qualidade de Vida de Crianças Africanas com Dermatite atópica pela escala CDLQI

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Kouassi YI[1,2], Ahogo KC[1,2], Bih OF[2], Kouassi KA[1,2], Kourouma HS[1,2], Allou AS[1,2], Gbandama KP[2], Kassi K[1,2], Ecra EJ[1,2], Kaloga M[1,2], Gbery IP[1,2], Kouamé K[1,2], Sangaré A[1,2]

[1]Felix Houphouët Boigny University, Abidjan, Ivory Coast

[2]Centre Hospitalier Universitaire of Treichville , Abidjan, Ivory Coast

ABSTRACT – Introduction: Atopic dermatitis (AD) is a chronic inflammatory disease that affects both children and adults. The main symptom is pruritus, which has an important impact on quality of life (QoL). The objective of our study was to assess the impact of AD on the quality of life of children through the CDLQI score.

Population and Methods: We performed a cross-sectional survey, with descriptive and analytical aims, carried out on the basis of prospective recruitment, carried out over a period of 7 months from December 2017 to June 2018. The study included children (5-16 years) with AD selected during dermatology consultations at the Centre Hospitalier Universitaire of Treichville. Data collected included the socio-demographic characteristics of patients and their AD and the results of a questionnaire on the severity score (SCORAD) and the quality of life index in these children (CDLQI).

Results: We included 60 children, mainly within the group from 05 to 09 years (57%). CDLQI average score was 9.9 and mean SCORAD 24. Pruritus, insomnia and sadness had more impact on QoL. We found a strong association between the severity of AD objectified by SCORAD and the CDLQI.

Conclusion: The study reveals a high impact of AD on the QoL of children in Abidjan mainly through pruritus, insomnia and sadness. It opens up reflection on the need for education for AD management and the prospect of creating an atopy school in Côte d'Ivoire.

KEYWORDS – Child; Côte d'Ivoire; Dermatitis, Atopic; Quality of Life; Surveys and Questionnaires.

RESUMO – Introdução: *A dermatite atópica (AD) é uma doença inflamatória crónica que afeta crianças e adultos. O prurido é um dos principais sintomas e o que tem um impacto importante na qualidade de vida.*

O objetivo do estudo é avaliar o impacto da AD na qualidade de vida da criança pela escala de CDLQI.

População e Métodos: *Durante um período de 7 meses, entre Dezembro 2017 e Junho de 2018, efectuámos um estudo "cross-sectional" descritivo e analítico com base num recrutamento prospetivo que incluiu crianças (5-16 anos) com AD selecionadas durante a consulta de Dermatologia do Centre Hospitalier Universitaire de Treichville. Os dados recolhidos incluíram características sociodemográficas da população e da AD e os resultados de questionários que avaliam a gravidade da AD (SCORAD) e a qualidade de vida destas crianças (CDLQI).*

Resultados: *Foram incluídas 60 crianças, sobretudo do grupo dos 5 aos 9 anos (57%). Os índices médios das escalas do CDLQI e SCORAD foram 9,9 e 24, respetivamente. O prurido, a insónia e a tristeza causaram o maior impacto na qualidade de vida. Encontrámos uma correlação forte entre a severidade da AD objetivada pelo SCORAD e a escala CDLQI.*

Conclusão: *O estudo revela um elevado impacto da AD na qualidade de vida das crianças em Abidjan, especialmente causado pelo prurido, insónia e tristeza. Estes dados chamam a atenção para a necessidade de uma educação especial para abordagem terapêutica global e para a perspetiva de criar uma escola de atopia na Costa do Marfim.*

PALAVRAS-CHAVE – *Costa do Marfim; Criança; Dermatite Atópica; Inquéritos e Questionários; Qualidade de Vida.*

INTRODUCTION

Atopic dermatitis (AD) or atopic eczema is an inflammatory chronic itchy skin disease. It is multifactorial in origin and occurs in genetically predisposed subjects.[1] AD is described as a global burden impacting the quality of life of patients.[2-4] In sub-Saharan Africa the prevalence of AD still remains unknown. Most studies are partial, fragmented[5,6] and are interested generally on clinical and therapeutic epidemiological aspects. Thereby the impact of this disease on quality of life (QoL) is rarely assessed. To overcome this unmet need we decided to conduct this study with the main objective of assessing the impact of AD on the QoL of children through the CDLQI score.

POPULATION AND METHODS

This study was carried out in the dermatology consultation unit of the Centre Hospitalier Universitaire from Treichville. It was a

cross-sectional, descriptive and analytical survey, carried out on the basis of prospective recruitment. Our investigation occurred from December 2017 to June 2018 (i.e. 07 months). The study population concerned patients consecutively observed during the consultation in the dermatology department whose parents gave a written informed consent to participate in the study. Inclusion criteria were children of all sexes, aged 5 to 16, observed in the consultation with a diagnosis of atopic dermatitis. The following parameters were studied: sex, age, place of residence, history of personal and family atopy, treatments and the items of SCORAD and CDLQI.

RESULTS

II.1. Epidemiological data

In our study, the sample consisted of 30 girls and 30 boys, i.e. sex ratio (M / F) of 1. The average age of the patients in our series was 8.8 ± 3.2 years with extremes 5 and 16 years old. The age group of 5 to 9 years was the most represented (57%). The majority of patients lived in the municipalities of Treichville (50%) and Yopougon (15%), two municipalities within the city of Abidjan.

II.2. Clinical data

More than half of the patients (68.3%) had a family history of atopic disease in our series, allergic rhinitis in 35% of cases, asthma in 21.7% and allergic conjunctivitis came third (11.7%). On a personal level, more than half of the patients had a history of atopy (76.7%): allergic rhinitis in 38.3%, asthma in 25% and allergic conjunctivitis in 13.3%. All patients were under topical therapy.

The mean SCORAD was 24 with extremes of 9 and 47. The SCORAD was minor in 31.7%, moderate in 46.7% and severe in 21.7% of cases (Fig. 1). As for the impact of CDLQI items, all the children were bothered by pruritus and the effect on their QoL was very important in more than half of them (65%). Sadness and insomnia had a significant effect on more than one-third (38.3%) of children (Table 1). AD had consequences on sleep in 90% of children. The effect of dermatitis on school performance was noted in 10% of children (Fig. 2). The mean CDLQI score was 9.9 with extremes of 1 and 24. Almost all patients had an impact of AD on their QoL. This effect was slight in 23.30%, moderate in 38.30%, significant in 35% and very important in 1.70% of cases (Fig. 3).

The deterioration in QoL was significant in 30% of girls and moderate in 25% of boys (Fig. 4).

Table 1 - Distribution of CDLQI items according to the importance of the effect on quality of life.

Items	Very large effect	Large effect	Moderate effect	Low effect or no effect
Pruritus	65.0%	23.3%	11.7%	0.0%
Sad or unhappy	13.3%	38.3%	20.0%	28.3%
Relationship Change	3.3%	18,3%	13.3%	65.0%
Special clothing	3.3%	21.7%	23.3%	51.7%
Embarrassed to Go Out	0.0%	10.0%	16.7%	73.3%
Embarrassed to do Sport	0.0%	3.3%	16.7%	80.0%
Consequence on school	0.0%	0.0%	10.0%	90.0%
Bad holidays	1.7%	13.8%	10.3%	74.1%
Funny names	3.4%	13.6%	28.8%	54.2%
Insomnia	31.7%	38.3%	20.0%	10.0%
Treatments	0.0%	1.7%	6.7%	91.7%

II.3. Analytical study

He had a strong relationship between CDLQI and SCORAD (Pearson correlation: R = 0.81 p = 0.00001) certifying the existence of a positive correlation between these two instruments, the scores of CDLQI and SCORAD (Fig. 5).

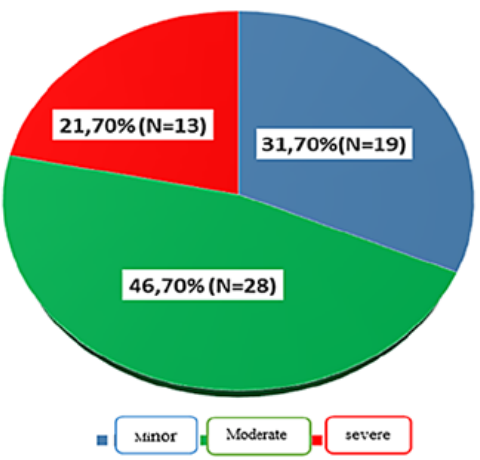

Figure 1 - Distribution of patients according to the severity of AD (SCORAD).

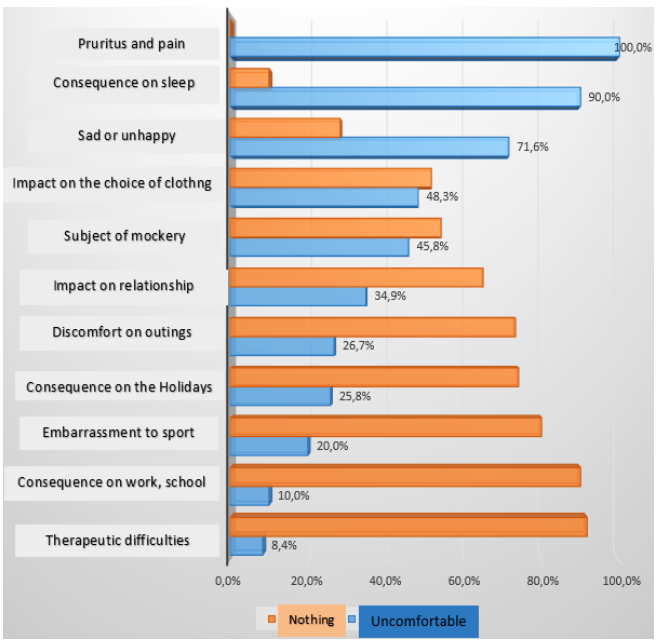

Figure 2 - Distribution of CDLQI items according to the presence of discomfort

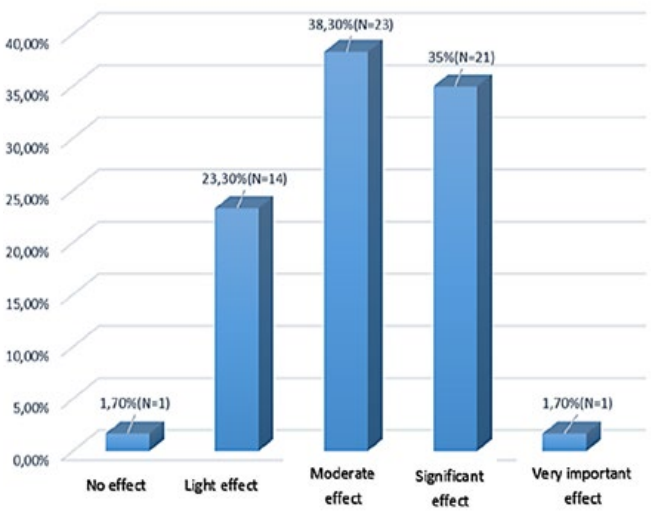

Figure 3 - Distribution of patients according to the intensity score of CDLQI (children quality of life index) (%).

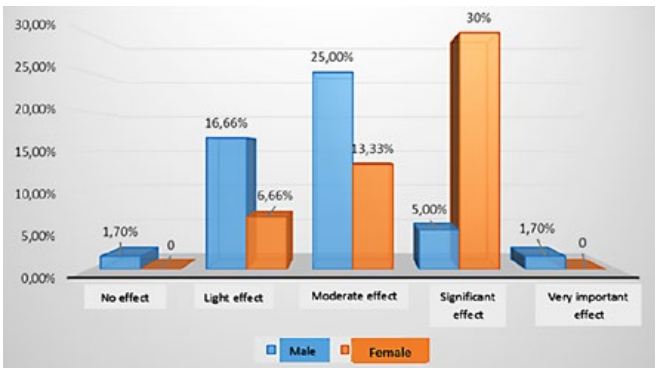

Figure 4 - Distribution of CDLQI score by sex.

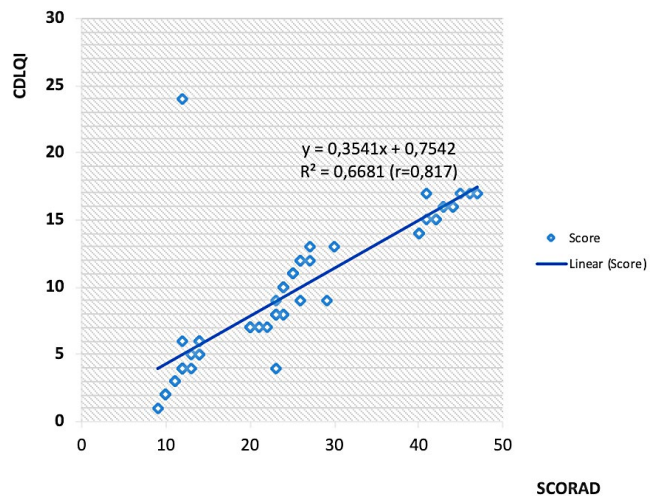

Figure 5 - Correlation between the SCORAD measuring AD severity index and CDLQI, evaluating impact on quality of life.

DISCUSSION

Various studies have demonstrated the genetic influence of AD. Indeed, 50% to 70% of AD patients have a parent or a first degree relative with AD, asthma or allergic rhinitis.[7] In our study, the family atopy rate was similar to that of Ly F *et al* in Senegal (47%).[8] On a personal level, more than half of the patients had a history of atopic disease (76.66%) in our series. Indeed, the association of several atopic manifestations in the same patient is classic but fickle. These manifestations usually appear in the following order, called "atopic march": AD, food allergy, asthma, allergic rhinitis and allergic conjunctivitis.[9]

The mean SCORAD was 24 with extremes of 9 and 87, with moderate and severe cases, respectively, in 46.7% and 21.7%, outnumbering severe forms usually reported in the literature, which represent less than 10% of affected individuals.[10,11] This data calls the attention to the severity of AD in African countries, even in younger populations.

The natural history of AD is characterized by a succession of relapse and remission periods. Indeed, the assessment of disease severity is important for therapeutic management. Questionnaire items within the CDLQI having obtained the highest scores, i.e. the variables which have the most affected quality of life were pruritus, insomnia and sadness, similarly to the study of Kim *et al*.[12] AD is an inflammatory dermatosis which has pruritus as its main symptom. Pruritus has a nocturnal upsurge in some children often causing sleep disturbances. These children sometimes sleep with their parents (cobeding), a situation that is sometimes the origin of family conflicts, including sadness in children.[13] Chronic inflammation, pruritus and insomnia can lead to absenteeism or bad performance at school. The mean CDLQI score was 9.9 with extremes of 1 and 24. Almost all of patients (98.3%) had an impact of AD on their QoL. This effect was slight in 23.3%, moderate in 38.3%, important in 35% and very important in 1.7% of cases. Our results are similar to those obtained in studies carried out in Brazil and Spain where the mean score was 9.5 and 9.4, respectively.[14,15] Other studies have found a score lower than ours such as the study conducted in Brazil and Sweden where the average score was 5.4 and 6, respectively.[16,17] QoL of affected subjects and their families is often much altered due to pruritus, sleep and mood disturbances. Overall, according to some studies, QoL is more affected during AD than during asthma or childhood diabetes.[13] Impact of childhood AD on QoL is usually independent on gender, but in our series the impact of AD seemed higher in girls. It can be explained by the fact that the aesthetic damage of this chronic inflammatory disease and its visibility is of much greater concern among female children. Our study showed a significant relationship between the quality of life (CDLQI) and the severity of the disease (SCORAD), which is in agreement with studies of Ben Gashir *et al* in the United Kingdom (England).[18] Indeed, AD affects QoL due to its visible character, the intensity of erythema and pruritus leading to scratching lesions. But, according to some studies, the deterioration in QoL is not always correlated with the severity of the disease. It would depend on the personality of the patient, the environment and quality of care.[19]

CONCLUSION

This study in which most of the patients were aged 5-9 years reveals the very significant impact of AD on the QoL of children in Abidjan, mainly through pruritus, insomnia and sadness. It also strengthens the link between the severity of the disease and the

importance of QoL impairment. Taking charge of this affection must therefore be global, integrating therapeutic intervention with education, for which a prospect of creating a school of atopy in Côte d'Ivoire would be welcome.

Conflicts of Interest: The authors have no conflicts of interest to declare. **Financing Support**: This work has not received any contribution, grant or scholarship. **Confidentiality of Data**: The authors declare that they have followed the protocols of their work center on the publication of data from patients. **Protection of Human and Animal Subjects**: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki). **Provenance and Peer Review**: Not commissioned; externally peer reviewed.

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ORCID
Kouassi Yao Isidore: https://orcid.org/0000-0003-1967-1034

Corresponding Author: Kouassi Yao Isidore
Adress: Treichville - 01 BP V03 Abidjan 01
Abidjan - Côte d'Ivoire
E-mail: isidore.kouassi@yahoo.fr

REFERENCES

1. Rerknimitr P, Otsuka A, Nakashima C, Kabashima K. The etiopathogenesis of atopic dermatitis: barrier disruption, immunological derangement, and pruritus. Inflamm Regen. 2017;37:14. doi: 10.1186/s41232-017-0044-7.
2. Cork MJ, Robinson DA, Vasilopoulos Y, Ferguson A, Moustafa M, MacGowan A, et al. New perspectives on epidermal barrier dysfunction in atopic dermatitis: gene-environment interactions. J Allergy Clin Immunol. 2006;118:3-21; quiz 22-3.
3. Nakatsuji T, Chen TH, Two AM, Chun KA, Narala S, Geha RS, et al. Staphylococcus aureus exploits epidermal barrier defects in atopic dermatitis to trigger cytokine expression. J Invest Dermatol. 2016;136:2192-200. doi: 10.1016/j.jid.2016.05.127.
4. Miajlovic H, Fallon PG, Irvine AD, Foster TJ. Effect of filaggrin breakdown products on growth of and protein expression by Staphylococcus aureus. J Allergy Clin Immunol. 2010;126:1184-190.e3. doi: 10.1016/j.jaci.2010.09.015.
5. Nnoruka EN. Current epidemiology of atopic dermatitis in south-eastern Nigeria. Int J Dermatol. 2004;43:739-44.
6. Hogewoning AA, Larbi IA, Addo HA, Amoah AS, Boakye D, Hartgers F, et al. Allergic characteristics of urban schoolchildren with atopic eczema in Ghana. J Eur Acad Dermatol Venereol. 2010;24:1406-12. doi: 10.1111/j.1468-3083.2010.03655.x.
7. Schultz Larsen F. Atopic dermatitis: a genetic-epidemiologic study in a population-based twin sample. J Am Acad Dermatol. 1993;28:719-23.
8. Ly F, Mbaye I, Wone I, Gaye-Fall C, Sow M-LM, Ndiaye B, et al. Allergie aux gants en latex chez les professionnels de la santé à Dakar. Ann Dermatol Venereol. 2006;133:971-4.
9. Rybojad M.La dermatite atopique. Arch Pediatr. 2012;19:882-5. doi: 10.1016/j.arcped.2012.05.020.
10. Barbier N, Paul C, Luger T, Allen R, De Prost Y, Papp K, et al. Validation of the Eczema Area and Severity Index for atopic dermatitis in a cohort of 1550 patients from the pimecrolimus cream 1% randomized controlled clinical trials programme. Br J Dermatol. 2004;150:96-102.
11. Shaikh WA, Shaikh SW. Allergies in India: an analysis of 3389 patients attending an allergy clinic in Mumbai, India. J Indian Med Assoc. 2008;106:220, 222, 224 passim.
12. Kim DH, Li K, Seo SJ, Jo SJ, Yim HW, Kim CM, et al. Quality of life and disease severity are correlated in patients with atopic dermatitis. J Korean Med Sci. 2012;27:1327-32.
13. Lewis-Jones MS, Finlay AY. The Children's Dermatology Life Quality Index (CDLQI): initial validation and practical use. Br J Dermatol. 1995;132:942-9.
14. Amaral CS, March FB, Sant'Anna CC. Quality of life in children and teenagers with atopic dermatitis. An Bras Dermatol. 2012;87:717-23. doi: 10.1590/s0365-05962012000500008.
15. Sánchez-Pérez J, Daudén-Tello E, Mora AM, Lara Surinyac N. Impact of atopic dermatitis on health-related quality of life in Spanish children and adults: the PSEDA study. Actas Dermosifiliogr. 2013;104:44-52. doi: 10.1016/j.ad.2012.03.008.
16. Campos AL, Araújo FM, Santos MA, Santos A, Pires CA. Impact of atopic dermatitis on the quality of life of pediatric patients and their guardians. Rev Paul Pediatr. 2017;35:5-10.
17. Gånemo A, Svensson A, Lindberg M, Wahlgren CF. Quality of life in Swedish children with eczema. Acta Derm Venereol. 2007;87:345-9.
18. Ben-Gashir MA, Seed PT, Hay RJ. Quality of life and disease severity are correlated in children with atopic dermatitis. Br J Dermatol. 2004;150:284-90.
19. Hon KL, Kam WY, Lam MC, Leung TF, Ng PC. CDLQI, SCORAD and NESS: are they correlated? Qual Life Res Int J Qual Life Asp Treat Care Rehabil. 2006;15:1551-8. doi: 10.1007/s11136-006-0019-7.