Epidemiological, Clinical, Therapeutic, and Progressive aspects of Acne in the Dermatology Department of the Regional Hospital of Thies (SENEGAL): about 1246 cases (2009-2019)

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ABSTRACT

Introduction: Acne is a chronic inflammatory pathology of the pilosebaceous follicle evolving by breakouts. It is a frequent reason for dermatological consultation. The aim of this work was to study the epidemiological, clinical, therapeutic and evolutionary aspects of acne. **Materials and methods:** This was a retrospective, cross-sectional study for descriptive purposes, conducted over a period 10 9 years (2009- 2019) at the dermatology department of the regional hospital of Thiès in Senegal. All data of patients received for acne including. Socio-demographic, clinical, para-clinical and evolution variables was collected and analyzed using a computer with Epi info 7 version 3.5.4 software. **Results:** Of the 46074 patients seen during the study period, 1246 had acne, representing a hospital prevalence of 2.7%. The sex ratio was 4.23. The mean age was 26.36 years [10-78 years]. The average consultation time was 9 months. The most common aggravating factor was cosmetic depigmentation (32.10%). The lesions were dominated by pustules (83.55%) and papules (71.91%). Acne was severe in 82.74% according to the scale global acne evaluation (GEA). Benzoyl peroxide was prescribed in 54.41% and isotretinoin in 3.77%. The favorable evolution was noted in 65.44% of cases. Sequelae were dominated by hyperpigmented macules in 13.24%, depressed scars in 0.80%, keloids in 0.24%. **Conclusion:** Acne is a frequent pathology in young people and women who practice cosmetic depigmentation. Acne was severe in most cases with sequelae that could have an impact on the quality of life of patients.

Keywords: acne, cosmetic depigmentation, Thiès, Senegal

INTRODUCTION

Acne is a chronic inflammatory dermatosis of the pilosebaceous

follicle progressing in flare-ups related to hyperseborrhea, hyperkeratinization and inflammation of this follicle by Cutibacterium acnes. In dermatological practice, it is a frequent reason for consultation and mainly affects adolescents [1, 2]. Worldwide, the prevalence of acne is around 80% in the majority of countries [3]. In the sub-Saharan region, acne is a frequent complication of the use of depigmenting cosmetics [4]. In Senegal, it is the 3rd reason for consultation and cosmetic depigmentation was found with a high proportion according to two studies conducted in the Senegalese capital [5,6].

However, few studies have focused on the epidemiology of acne in Senegal and none have been conducted in the Thiès region, which justifies our work, the objectives of which were to study the epidemiological, clinical, therapeutic and evolutionary aspects of patients with acne, received in the dermatology department of the regional hospital of Thiès.

PATIENTS AND METHODS

Type and scope of study: This was a retrospective cross-sectional study with a descriptive aim, carried out in the dermatology department of the University and Regional Hospital of Thiès.

Study period: Conducted over a 10-year period (January 1, 2009 to December 31, 2019)

Study population: included all patients seen in the dermatology department for acne. A case of acne is defined as any patient with a rash consisting of blackheads, papular and/or pustular and/or nodular and/or cystic lesions on the face and/or trunk.

Inclusion criteria: All records of patients seen for acne were included.

Exclusion criteria: All incomplete records were excluded from the study.

Data collection: Epidemiological, clinical, therapeutic, and evolutionary data were collected using a standardized survey sheet.

The following variables were collected:

- Epidemiological: age, sex, occupation, geographical origin

- Clinical: consultation time, history, clinical manifestations, assessment of the severity of acne lesions with the GEA (Global

Evaluation Acne) scale. It defines several grades, ranging from unlesion-free acne to very severe acne [7].

GEA 1: very mild: virtually no lesions, rare scattered open or closed comedones, and rare papules.

GEA 2: light: easily identifiable, less than half of the face is affected. Some open or closed comedones and a few papulopustules.

GEA 3: Medium: more than half of the surface area of the face is affected. Numerous papulo-pustules, numerous open or closed comedones. A nodule may be present.

GEA 4: severe: the entire face is affected, covered with numerous papulo-pustules, open or closed comedones, and rare nodules.

GEA 5: very severe: highly inflammatory acne covering the face with nodules.

- Therapeutics: therapeutic protocol used locally and systematically.

- Progressive: healing, sequelae, side effects

Data Entry and Analysis: Data was captured and analyzed using a computer using Epi info 7 version 3.5.4 software. Univariate analyses were performed by calculating proportions for qualitative variables, means and standard deviations for quantitative variables.

RESULTS

Forty-six thousand seventy-four (46074) patients were seen in the dermatology department of HRT during the study period. Of these, 1246 patients had acne, i.e. a hospital prevalence of 2.7%. Cases of acne were more common in 2016 with a peak of 12.12%. The number of patients was highest during the months of July, August and September with proportions exceeding 10%. The median age was 25 years. The mean age of our patients was 26.36 ± 8.72 years and the age group of 21 to 30 years was the most represented with 48.39% of cases. The sex ratio was 4.23. The vast majority of the population (87.72%) (n=1093) was from the urban area. Cases of acne were more common in non-occupational patients, accounting for 60.43% (n=753) of cases. Most of the latter were pupils or students, i.e. 45.18% (n=563).

The mean time to consultation was 9 ± 12.1 months with extremes of 72 hours to 8 years. Elemental lesions were dominated by pustules (Figure 1) in 83.55% (n=1041), followed by papules (Figure 2) in 71.91% (n=896), comedones 65.73% (n=819), nodules 5.06% (n=63) and cysts 2.89% (n=36). These lesions are often associated with each other. The location of the lesions on the face was the most frequent, with 97.99% on the forehead and 97.9% on the cheek. Mixed acne was represented in 57.95%, followed by the inflammatory form with 34.27% and the retentional form with 7.78%. The majority of patients were classified as stage 4 (severe acne) of the GEA (Global Evaluation Acne) classification, i.e. 82.74% of cases (Figure 3). Some etiological factors were noted. Thus, according to the psychological profile, stress was more frequent with a proportion of 0.4%. As for the practice of voluntary cosmetic depigmentation, it was noted in 400 patients or 32.10% (n=400). All patients who depigmented were female, i.e. 39.68% of women (n=1008). Hydroquinone was used in 182 patients (45.5%) and topical corticosteroids in 70 patients (17.5%). Among the other factors favouring contraceptives, the most common were found with a proportion of 0.96%.

Treatment was prescribed for each patient. The combination of local and systemic treatment was the most prescribed with 952 cases or 76.40%. Benzoyl peroxide was the most prescribed topical treatment at 54.41%. The mean duration of treatment was 5.85 ± 2.7 months. The course under treatment was marked by an improvement in 815 patients (65.41%). Recurrences were noted in 25 patients. Sequelae were reported in 179 patients, or 14.36%. Of these, 13.24% (n=165) had hyperpigmented macules, 0.80% (n=10) had depressed scars, 3 patients (0.24%) had keloids and 1 patient (0.08%) had hypertrophic scars.

DISCUSSION

In our study, we found a hospital prevalence of 2.7%. This was lower than the prevalences reported by Andonaba et al. [8] Burkina Faso and Onayemi et al. [9] in Nigeria, which were 7.9% and 7%, respectively. This difference is likely due to study types and sampling methods. Our patients were relatively young with an average age of 26.36 years. This result is superimposed on that found by Dégboé et al. in Benin (24.6 years) [10] and by Kane et al. in Dakar (25.6 years) [6]. On the other hand, the average age found in Togo and Morocco was lower than ours at 23 years and 23.8 years respectively [11,12]. This is probably

due to the fact that this age corresponds to the period of strong hormonal impregnation. The predominance of the female sex found in our study has already been described in the literature [10, 13]. Indeed, women are more likely to seek medical care to heal their image than men. Of our patients, 87.72% resided in urban areas. A study carried out in Egypt by El-khateeb et al. had found an urban predominance of 51.6% [14]. These results could be explained by the fact that acne is one of the first reasons for consultation in dermatology, and there are more specialists in urban areas, and therefore they are more accessible there.

In our series, elemental lesions were dominated by pustules in 83.55%, while in Togo papules were more observed (99.2%) [4]. The predominance of pustular lesions in our series could be explained by the high prevalence of the inflammatory form. In the literature, the predominance of acne lesions on the cheeks and forehead on black skin has already been reported, as well as the predominance of chin lesions on white skin [10,15]. This corroborates our findings. Moreover, in the series of Kombaté et al., the thorax was affected in 20.2% and the shoulders in 41.2% [4].

The inflammatory form was predominant with 76.3%, followed by the retentional form with 67.7% in the series of Kane et al. [6]. In several studies, acne was often inflammatory [15,16]. In our series, the mixed form was the most represented (57.95%), followed by the inflammatory form (34.27%), which could be explained by the long consultation time.

According to the GEA scale, 82.74% of our patients had severe acne. In a study conducted in China, 68.4% had a mild form; 26% had moderate acne and 5.6% had severe acne [17]. The predominance of the severe form in our study could be related to the fact that some patients often resort to cosmetic products that can worsen the symptomatology to treat acne [18]. In terms of etiological factors, voluntary cosmetic depigmentation came first with 39.68% and only affected women. These results can be superimposed on those found in Dakar (38.7%) [6] and Togo (40.7%) [4]. Acne has been known for several years as a complication of voluntary cosmetic depigmentation. It accounted for 41.2% of complications in Dakar, where the lesions were more extensive in the back and shoulders [4], and accounted for 29% of complications in a study conducted in Bamako [19].

In our series, we noted the presence of 5 cases (0.40%) of stress,

1 case (0.08%) of bipolar disorder, 1 case (0.08%) of behavioral disorder and 1 case (0.08%) of Graves' disease which is very often related to stress. The coexistence of psychiatric disorders in acne patients has been reported by several authors [12,16]. The majority of these studies find a certain degree of psychological suffering (anxiety, depression, dysmorphobia, etc.) that the dermatologist must be able to recognize. This awareness will make it possible to better take into account patients' concerns, optimize treatment modalities and offer the best quality of care.

Of our patients, we reported a proportion of 0.24% diabetic. Burris et al. reported in their study the involvement of foods with a high glycemic index in acne breakouts. These foods increase the production of insulin, which is thought to contribute to the formation of androgen hormones, which promote sebum production and therefore the appearance of acne [20].

During our study, the treatment varied according to the clinical forms: in the case of classic acne, the treatment prescribed was benzoyl peroxide, topical retinoids sometimes combined with a local or systemic antibiotic. Isotretinoin was prescribed in 3.77%. Kane et al. [6] in their Dakar series, found a 1.1% proportion of oral retinoid treatment. This difference in the prescription of isotretinoin could be explained by the predominance of severe forms in our series. However, it should be noted that the cost of isotretinoin remains high and the side effects are numerous and potentially serious.

Evolutionarily, we noted improvement in 65.41% of cases, steady state in 1.68%, worsening in 0.32% and recurrence in 2.01%. The favorable evolution was found with the same proportion in the study by Kane et al. [6]. However, it can lead to sequelae, so in our series, patients had hyperpigmented lesions in 13.24% of cases, followed by depressed scars (0.80%) and keloids (0.24%). Authors had found that histopathological images show an increase in pigmentary incontinence during inflammation [10,15]. This could explain the high frequency of post-inflammatory hyperpigmentation on black skin [11,16]. In addition, Kiprono et al. in Kenya, depressed scars were predominant at 9.8%, followed by keloid scars (2.3%) [21].

Figure 1: pustular lesions of cheek.

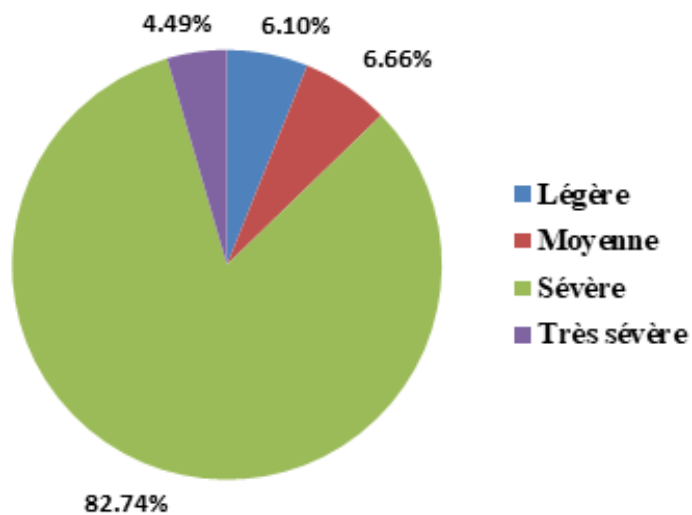**Figure 2:** Papular lesions of the forehead.

Figure 3: Distribution according to the GEA scale

CONCLUSION

Acne is a chronic inflammatory disease that is common in adolescents and remains prevalent in several countries. It is a common complication of voluntary cosmetic depigmentation in sub-Saharan Africa. Severe forms are very common, and their management requires treatment with isotretinoin, the cost of which remains high. Hyper pigmented scarring macules of acne are at stake for aesthetic prognosis and their management remains difficult.

REFERENCES

1. Daniel F, Dreno B, Poli F, Auffret N, Beylot C, Bodokh I, et al. (2000). Descriptive epidemiological study of acne on scholar pupils in France during autumn 1996. Ann Dermatol Venereol. 127(3):273 278.

2. Pawin H, Beylot C, Chivot M, Faure M, Poli F, Revuz J, et al. (2004). Physiopathology of acne vulgaris: recent data, new understanding of the treatments. Eur J Dermatol. 14(1):4 12.

3. Dréno B. (2010). Données récentes sur l'épidémiologie de l'acné. Annales de Dermatologie et de Vénéréologie. 137:S49 51.

4. Kombaté K, Mouhari-Toure A, Saka B, Akakpo AS, Maboudou A, Pitché P, et al. (2012). Acne and skin bleaching in Lomé, Togo. Int J Dermatol. 51 Suppl 1:27 29, 30 32.

5. Seck B, Ly F, Ndiaye MTD, Diouf A, Diop A, Fall F, et al. (2016). Profil épidemio-clinique des affections cutanées à l'Institut d'hygiene sociale de Dakar : étude portant sur 12 390 patients sur une periode de 1 an. Annales de Dermatologie et de Vénéréologie. 143(12, Supplement):S145.

6. Kane A, Niang SO, Diagne AC, Ly F, Ndiaye B. (2007). Epidemiologic, clinical, and therapeutic features of acne in Dakar, Senegal. Int J Dermatol. 46 Suppl 1:36 38.

7. Dréno B, Poli F, Pawin H, Beylot C, Faure M, Chivot M, et al. (2011). Development and evaluation of a Global Acne Severity Scale (GEA Scale) suitable for France and Europe. J Eur Acad Dermatol Venereol. 25(1):43 48.

8. Andonaba JB, Barro-Traoré F, Diallo B, Sakana L, Niamba P, Traoré A. (2010). Aspects épidémiologiques des affections dermatologiques au Centre Hospitalier Universitaire Souro SANOU de Bobo-Dioulasso. Annales Africaines de Médecine. 4(1):668 677.

9. Onayemi O, Isezuo SA, Njoku CH. (2005). Prevalence of different skin conditions in an outpatients' setting in north-western Nigeria. Int J Dermatol. 44(1):7 11.

10. Dégboé B, Koudoukpo C, Agbéssi N, Elégbédé-Adégbitè N, Akpadjan F, Adégbidi H, et al. (2019). Acne on Pigmented Skin: Epidemiological, Clinical and Therapeutic Features in Dermatology in Benin. JCDSA. 09(04):305 312.

11. Saka B, Akakpo AS, Téclessou JN, Mouhari-Toure A, Mahamadou G, Gnossike P, et al. (2018). Acne in Lomé, Togo: clinical aspects and quality of life of patients. BMC Dermatol. 18(1):7.

12. Mernissi F, Krich S, Meziane M, Elfakir S, Bouzidi H, Amraoui N, et al. (2013). Retentissement de l'acné sur la qualité de vie (échantillon d'une population marocaine). Annales de Dermatologie et de Vénéréologie. 140:S15.

13. Zulu TP, Mosam A, Balakrishna Y, Dlova NC. (2017). Acne in South African black adults: A retrospective study in the private sector. S Afr Med J. 107(12):1106 1109.

14. El-Khateeb EA, Khafagy NH, Abd Elaziz KM, Shedid AM. (2014). Acne vulgaris: prevalence, beliefs, patients' attitudes, severity and impact on quality of life in Egypt. Public Health. 128(6):576 578.

15. Poli F, Faye O, Ly F, Le Thuaut A. (2014). Acné de la femme adulte : étude clinique en France et en Afrique sub-saharienne. Annales de Dermatologie et de Vénéréologie. 141(5):336 345.

16. Kouotou EA, Adegbidi H, Bene Belembe R, Sieleunou I, Nansseu JR, Kamga J-P, et al. (2016). Acné au Cameroun : qualité de vie et comorbidités psychiatriques. Annales de Dermatologie et de Vénéréologie. 143(10):601 606.

17. Shen Y, Wang T, Zhou C, Wang X, Ding X, Tian S, et al. (2012). Prevalence of acne vulgaris in Chinese adolescents and adults: a community-based study of 17,345 subjects in six cities. Acta Derm Venereol. 92(1):40 44.

18. Dlova NC, Hamed SH, Tsoka-Gwegweni J, Grobler A. Skin lightening practices: an epidemiological study of South African women of African and Indian ancestries. British Journal of Dermatology. 2015; 173(S2):2 9.

19. Mahé A, Kéita S, Bobin P. (1993). Complications dermatologiques de l'utilisation cosmétique de produits dépigmentants à Bamako (Mali). Annales de Dermatologie et de Vénéréologie. 121:142 146.

20. Burris J, Rietkerk W, Woolf K. (2013). Acne: The Role of Medical Nutrition Therapy. J Acad Nutr Diet. 113(3):416 430.

21. Kiprono SK, Wamburu G. (2016). Acne vulgaris in general population of rural western Kenya: cross-sectional community survey. Int J Dermatol. 55(4):e212 e214.