

# Acne on Pigmented Skin: Epidemiological, Clinical and Therapeutic Features in Dermatology in Benin

B. Dégboé<sup>1\*</sup>, C. Koudoukpo<sup>2</sup>, N. Agbéssi<sup>2</sup>, N. Elégbédé-Adégbitè<sup>1</sup>, F. Akpadjan<sup>1</sup>, H. Adégbidi<sup>1</sup>, F. Atadokpèdè<sup>1</sup>

<sup>1</sup>Service of Dermatology and Venerology, National Teaching Hospital HKM of Cotonou, Faculty of Health Sciences, University of Abomey-Calavi, Abomey-Calavi, Benin

<sup>2</sup>Service of Dermatology and Venerology, Department Teaching Hospital of Borgou-Alibori, Faculty of Medicine, University of Parakou, Parakou, Benin

Email: \*kebddegboe@yahoo.fr

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## Abstract

**Purpose:** The aim of this work was to describe the epidemiological, clinical and therapeutic features of pigmented skin acne in Benin. **Methods:** This was a prospective, cross-sectional and analytical study conducted in the dermatology departments of the Borgou-Alibori Departmental Teaching Hospital and the National Teaching Hospital Hubert Koutoukou Maga from January 2017 to December 2018, which has included black-skinned patients who were diagnosed with acne and gave their free and informed consent. The ECLA score was used for clinical evaluation of the severity of the acne. **Results:** We collected 129 patients including 35 men and 94 women. The median age of the patient was 24.6 years  $\pm$  8.5 years. The median age of onset was 17.9 years  $\pm$  7.6 years. The main triggering of worsening factors was inadequate self-medication (53.5%), excoriation (48.1%), certain foods (34.9%) and lightening cosmetic (32.5%). Most patients had inflammatory (51.9%) or comedonal (31.8%) acne associated with post-inflammatory hyperpigmentations (70.5%) and excoriated lesions (31%). In the majority of cases, acne was moderate in women (52.1%) and severe in men (62.8%) with  $p = 9 \times 10^{-3}$ . The lesions were electively seated in the face (95.3%), mainly on the forehead and cheeks. Active cosmetics (76.7%), retinoids (58.9%), oral antibiotics (55.8%), and benzoyl peroxide (48.9%) were the most commonly used therapeutic classes. **Conclusion:** The majority of young and adult women consulted for predominant inflammatory acne on the forehead and cheeks, moderate in woman and severe in men in Benin. The therapeutic arsenal consisted mainly of active cosmetics, retinoids, antibiotics and benzoyl peroxide.

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## Keywords

Inflammatory Acne, Adult Acne, Active Cosmetic, Pigmented Skin, Benin

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### 1. Introduction

Acne is a chronic inflammatory dermatosis of the pilo-sebaceous follicle evolving by attacks and particularly affecting the seborrheic zones [1] [2] [3] [4].

It is traditionally recognized as physiological dermatosis of adolescents, affecting more than 80% of them. It is more and more common in adults [4] [5] [6] [7].

Its pathogenesis involved both internal and external factors. Although its physiopathology remains the same, its clinical presentation varies according to skin phototypes [8] [9] [10] [11] [12]. Inflammatory lesions and post-inflammatory hyperpigmented scars appear to be common on pigmented skin [9] [10] [11] [13]. This difference in clinical presentation should lead to a diversification of the therapeutic attitude. Cosmetic containing a skin bleaching agent combined with a photoprotective agent for application in the morning, must be systematically prescribed. But, it is the same treatment used in acne in white skin which is usually prescribed for acne in pigmented skin [4] [9] [10] [13].

In view of the epidemiological evolution and the different clinical aspects, we proposed to document of the epidemiological, clinical and therapeutic features of acne in our context.

### 2. Material and Methods

We carried out a prospective, transversal and analytical study in the dermatology departments of the Borgou-Alibori Departmental Teaching Hospital in Parakou and the National Teaching Hospital Hubert Koutoukou Maga (CNHU-HKM) in Cotonou. These two hospitals are the first two Teaching hospitals in Benin, the first being in the north and the second in the south of Benin. From January 2017 to December 2018, we included patients who had a clinical diagnosis of acne and gave their free and informed consents to participate in the survey. Epidemiological, clinical and therapeutic data were collected on a survey sheet. The Clinical Assessment of Acne (ECLA) score was use to assess the severity of the disease. These data were entered anonymously and analyzed with EPI INFO7 and SPSS16.

### 3. Results

We include 129 subjects, 35 men (27.1%) and 94 women (72.9%). The median age of the patient was 24.6 years  $\pm$  8.5 years with extremes of 11 years and 56 years. Young people aged 18 - 24 years (48.8%) and adults aged 25 - 45 years (36.4%) were most represented. Adults ( $\geq$ 25 years) made up 38.7% of population, or 50 patients, while pubescent and adolescents (10 - 17 years) represented

12.4%, or 16 patients (**Figure 1**).

The median age of onset was 17.9 years  $\pm$  7.6 years. The median consultation time was 5.1 years  $\pm$  7.1 years.

Triggering or aggravating factors were inadequate self-medication (53.5%), excoriation (48.1%), certain foods (34.9%) and lightening cosmetics (32.5%) or comedogenic cosmetics (9.3%) and mechanical factors (4.6%).

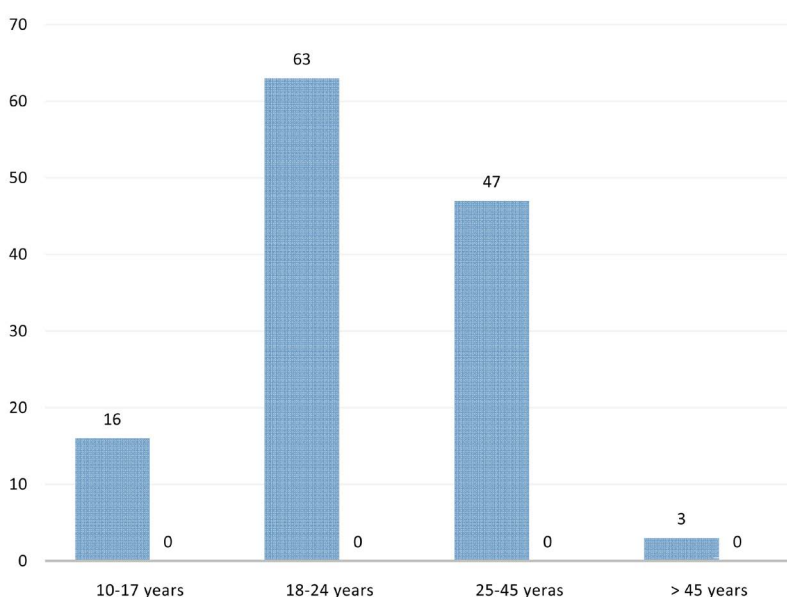
Hyperseborrhea was present in all patients most of moderate (45.7%) to mild (7.2%). The predominant elementary lesions (**Table 1**) were the papules (79.1%), the microcysts (76%), the comedons (71.3%), and the post-inflammatory hyperpigmentations (70.5%).

The lesions were electively seated in the face (95.3%), mainly on the forehead (92.2%), the cheeks (86.8%), the temples (57.4%), and the chin (54.3%). Out the face, there was thoracic involvement (33.3%), shoulders (12.4%), arms (8.5%), and the lower back (7%).

Most patients had inflammatory (51.9%) or comedonal (31.8%) acne. Nodulo-cystic acne was found in 15.5% of patients (**Table 1**).

The average ECLA score was  $10 \pm 5$  (**Figure 2**). Moderate acne (ECLA: 6 - 12) was common (43.5%) followed by severe acne (ECLA > 12; 34.7%) and mild acne (ECLA < 6; 21.8%). Acne was mild in 17.1% (6/35) of men versus 22.3% (21/94) of women, moderate in 20% (7/35) of men versus 52.1% (49/94) of women and severe in 62.9% (22/35) of men versus 25.5% (24/94) of women;  $p = 9 \times 10^{-3}$ .

The treatment initiated was dominated by topical treatment (94.6%) versus systemic treatment (59.7%). The therapeutic arsenal (**Table 2**) consisted mainly of active cosmetic (99; 76.7%), oral antibiotic (72; 55.8%) and retinoids (76; 58.9%). The photo-protector has been prescribed in a single patient.



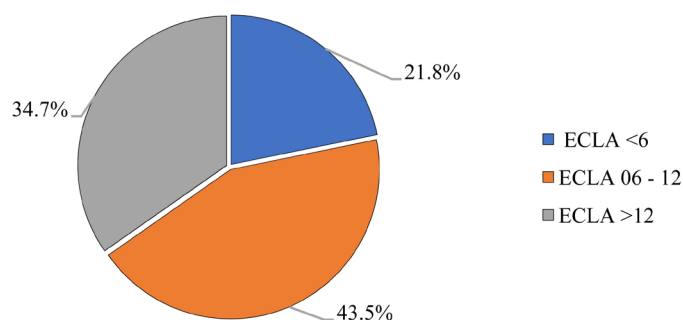
**Figure 1.** Age distribution of 129 acneic patients seen in Departments of Dermatology in CNHU-HKM Cotonou and CHUD-B/A Parakou at January 2017 to December 2018.

**Table 1.** Clinical aspects of acne in 129 patients seen in Departments of Dermatology in CNHU-HKM Cotonou and CHUD-B/A Parakou at January 2017 to December 2018.

Elementories lesions	Number	Frequency (%)
<b>Hyperseborrhea</b>	<b>129</b>	<b>100</b>
<b>Comedons</b>	<b>92</b>	<b>71.3</b>
<b>Microcystic lesions</b>	<b>98</b>	<b>76</b>
<b>Papule</b>	<b>102</b>	<b>79.1</b>
Pustular lesions	49	38
<b>Post-inflammatory hyperpigmentations</b>	<b>91</b>	<b>70.5</b>
Snow-peak scars	14	10.9
Nodules	20	15.5
Edema	2	1.6
Excoriated lesions	40	31
<b>Clinical forms</b>		
<b>Comedonal acne</b>	<b>41</b>	<b>31.8</b>
<b>Inflammatory acne</b>	<b>67</b>	<b>51.9</b>
Pigmented acne	5	3.9
Conglobata acne	6	4.7
Excoriated acne	6	4.7
Cicatricial acne	4	3.1
Acneic tetrad	1	0.8

**Table 2.** Treatments used of acne in 129 patients seen in Departments of Dermatology in CNHU-HKM Cotonou and CHUD-B/A Parakou at January 2017 to December 2018.

Type of treatment	Number	Frequency (%)
	N = 129	
<b>Topical treatment</b>	<b>122</b>	<b>94.6</b>
<b>Active cosmetics</b>	<b>99</b>	<b>76.7</b>
<b>Retinoïds</b>	<b>76</b>	<b>58.9</b>
<b>Benzoyl peroxide</b>	<b>63</b>	<b>48.9</b>
Antibiotics	42	32.6
Photoprotector	1	0.78
Azelaïc acid	1	0.78
<b>Systemic treatment</b>	<b>77</b>	<b>59.7</b>
<b>Antibiotics</b>	<b>72</b>	<b>55.8</b>
Zinc gluconate	2	1.6
Isotretinoin	3	2.3



**Figure 2.** Distribution according to the severity of acne among the 129 patients seen in Departments of Dermatology in CNHU-HKM Cotonou and CHUD-B/A Parakou at January 2017 to December 2018.

#### 4. Discussion

The average age of the 129 participants was 24.6 years  $\pm$  8.5 years with extremes of 11 years and 56 years. Young people (45.8%), adults (38.7%), and women (72.9%), consulted mostly for acne lesions while pubescent and adolescents represented 12.4% of consultants and men 27.1%. Our results confirm the observation that the prevalence of adult acne is increasing [4] [5] [6] [14]. On the other hand, this increase in prevalence is more likely for adult and young women [2] [3] [4] [5] [7]. It is often the continuation of adolescent acne or late-onset acne since the median age of onset was 17.9 years  $\pm$  7.6 years [1] [4] [8].

The low proportion of adolescents may be explained by the fact that acne is a condition neglected by parents who consider it a normal physiological phenomenon in adolescents [3] [4] [7]. So our sample couldn't represent the whole population.

The majority of patients had predominantly inflammatory acne (51.9%). Although the physiopathology of acne is the same regardless of cutaneous phenotype, it has been reported by several authors that subjects with pigmented skin more often develop inflammatory acne [7] [8] [10]. Histopathological images demonstrate an exaggerated inflammatory response even in non-inflammatory lesions [2] [8] [9]. This would explain the high frequency of post-inflammatory hyperpigmentations on pigmented skin [3] [7] [11].

For other authors, delayed consultation would be the basis of the inflammatory stage observed during the consultation [8] [12]. This delay was also noted during our study because the median consultation time was 5.1 years  $\pm$  7.1 years. In this case, this inflammatory predominance is the consequence of self-medication based on bad cosmetics or drugs [3] [4] [12] [15]. The latter would be source of aggravation of primary lesions evolving to hyperpigmented scars (70.5%) after excoriation (48.1%) of the primary lesions. In order to reduce or hide these hyperpigmented scars, patients frequently use depigmenting (32.5%) or comedogenic (9.3%) cosmetic that only aggravated acne [4] [5] [6] [7] [8]. It creates a vicious circle that is difficult to break [7] [8] [9].

Previous studies have shown that acne predominates on the cheeks and forehead on pigmented skin whereas on white skin elective topography was the re-

gion of the beard [1] [4] [8] [12]. Our study confirms the elective involvement of the forehead (92.2%) and the cheeks (86.8%) irrespective of the physiological age of the patient. This phenomenon is linked to the use of comedogenic cosmetics for fair care and facial care [1] [10] [12].

It has been reported by some authors that people with pigmented skin often develop severe acne [3] [7] [8]. The majority of our patient had moderate (43.5%) and severe (34.7%) acne, compared with South Africa and French, where mild to moderate acne predominated [2] [16]. There is therefore an interracial but also intra-racial difference in the clinical presentation of acne.

In our series, women were more likely to have moderate acne (52.1%) while it was severe in almost 2/3 of men. Despite the severity of acne, nodulo-cystic lesions were observed in only 15.5% and snow-peak scars in 10.9% of them. This confirms the observation that pigmented skin exhibited fewer nodulo-cystic lesions and snow-peak scars than Caucasians [2] [7] [10].

In addition, our results reveal that men are more likely to develop severe acne. Increased hyperseborrhea and increased bacterial colonization in men are predictive of this severity [10] [11]. Studies on large cohort will confirm this observation and look for other risk factors.

In our study, prescription of active cosmetics was more important than that conventional medication. These cosmetics are endowed with several beneficial properties for the treatment of acne. They can be sebum-regulating, anti-inflammatory, keratolytic, depigmenting and sometimes antibacterial without risk of resistance [6] [14] [17] [18]. In addition, they are easier to use, effective and have a fairly good tolerance compare to anti-acne drugs [2] [6] [14] [18]. Despite the high proportion of hyperpigmented scars and greater susceptibility to the hyperpigmenting evolution of acne on pigmented skin, photoprotective agent was very rarely prescribed in dermatology in Benin. The same observation has been made by some authors [10] [13].

However, acne on pigmented skin is rapidly inflammatory and often has a hyperpigmenting evolution. These post-inflammatory hyperpigmentations are unsightly and frequently lead the impaired quality of life [1] [7]. They constitute the most frequent reason of consultation [2] [5] [9]. Studies that can find the most appropriate treatments for pigmented skin acne as envisaged by some authors [10] [11] should improve the quality of life of patients. For this, we recommend, as others authors, studies that will help to find the best suited treatment for acne on pigmented skin.

## 5. Conclusion

Our study notes a prevalence of acne in young and adult woman in hospitals in Parakou and Cotonou. Acne was often cosmeto-induced or cosmeto-aggravated, manifested primarily by inflammatory lesions and post-inflammatory hyperpigmentations that electively sat on the forehead and cheeks. Flares were often moderate in women and severe in men. The treatment of acne in dermatology in Benin was mainly based on the use of active cosmetics associated with conven-

tional treatment and seemed less focused on hyperpigmentation. Subsequent studies would better evaluate the therapeutic efficacy and look for the best suited treatments for acne on pigmented skin.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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