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ORIGINAL ARTICLE

Treatment of Acne in Daily Clinical Practice: an Opinion Poll Among Spanish Dermatologists

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KEYWORDS
Acne;
Treatment;
Survey;
Treatment algorithm

Abstract
Background and objectives: The aim of this study was to determine the approaches used to treat acne in clinical practice by Spanish dermatologists. A secondary objective of the study was to compare the practices of Spanish dermatologists with the Acne Global Alliance treatment algorithm and develop a Spanish treatment algorithm for acne.
Patients and methods: A multicenter, cross-sectional survey was undertaken among 872 Spanish dermatologists. The study comprised 4 randomly distributed questionnaires. The first 3 contained the following case descriptions: severe acne associated with masculinization (case 1), mild comedonal acne (case 2), and moderate papulopustular acne (case 3). The fourth questionnaire contained 5 photographs of different types of acne and an algorithm containing various treatment options, from which dermatologists were asked to choose the most appropriate.
Results: For case 1, 55% of dermatologists chose oral antiandrogens/contraceptive drugs plus topical retinoids or topical benzoyl peroxide/antibiotics. In case 2, 62% chose topical retinoids and, in case 3, 68% chose systemic antibiotics plus benzoyl peroxide. Combination therapy was considered the first-line therapy in all types of acne, with topical retinoids as the initial treatment option for mild and moderate forms and the preferred option for maintenance therapy.
Conclusions: In general, Spanish dermatologists treat acne in accordance with the Acne Global Alliance treatment algorithm. The varying opinions reported in response to open questions, however, confirm the need to unify criteria for the treatment of acne.

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PALABRAS CLAVE
Acné;
Tratamiento;
Encuesta;
Algoritmo de tratamiento

Tratamiento del acné en la práctica clínica habitual: encuesta de opinión entre los dermatólogos españoles

Resumen

Introducción y objetivos: El objetivo del estudio fue conocer los hábitos de tratamiento del acné de los dermatólogos españoles. El objetivo secundario fue comparar dichos hábitos con el algoritmo de la Global Alliance y elaborar un algoritmo español de tratamiento del acné.

Pacientes y métodos: Se diseñó un estudio tipo encuesta, transversal y multicéntrico en el que participaron 872 dermatólogos españoles. El estudio constaba de cuatro encuestas, distribuidas aleatoriamente, con los tres casos clínicos siguientes: acné grave en el seno de un síndrome de androgenización (caso 1), acné comedoniano de intensidad leve (caso 2) y acné moderado papulopustuloso (caso 3). La cuarta encuesta presentaba cinco fotografías de diferentes tipos de acné y un esquema con varias opciones terapéuticas para elegir las más adecuadas.

Resultados: Para el caso 1 un 55% de los dermatólogos eligieron la opción de antiandrógenos/anticonceptivos orales más retinoides tópicos o más peróxido de benzoilo/antibióticos tópicos. En el caso 2 un 62% escogieron retinoides tópicos, y en el caso 3 un 68% seleccionaron la opción de antibióticos sistémicos más peróxido de benzoilo. La terapia combinada fue considerada de elección en todos los tipos de acné, siendo los retinoides tópicos el tratamiento inicial para las formas leves y moderadas, así como la opción preferida como tratamiento de mantenimiento.

Conclusiones: En general, los dermatólogos españoles tratan el acné de acuerdo con el algoritmo de la Global Alliance, pero las numerosas opiniones recogidas en las preguntas abiertas de las encuestas confirman la necesidad de unificar criterios en el tratamiento del acné.

Introduction

Acne is one of the most common skin disorders seen in dermatology practice and affects an estimated 85% of adolescents and young adults. Although it is most common in patients aged 12 to 24 years, it also affects other age groups, with a prevalence of 8% in adults aged 25 to 34 years and of 3% in those aged 35 to 44 years.[1,2] In Spain, 74% of schoolchildren aged between 12 and 18 years have acne, with no difference between sexes; the highest prevalence is observed in adolescents aged between 14 and 16 years.[3] The prevalence of the condition in young people aged 18 to 24 years is 19%.[4,5] Consistent with its high prevalence, acne accounts for 10% to 30% of all dermatology consultations.

Acne deserves particularly close attention from physicians. Not only is it extremely common, but its clinical manifestations predominantly affect the face, causing scarring that can lead to impaired quality of life.[6,7] Furthermore, importance needs to be attached to the advances that have been made in acne treatment in recent years.[8-12] The increasing recognition of the importance of this condition is well illustrated by the emergence of quality-of-life and treatment-satisfaction questionnaires targeting patients with acne[13-15] and the development of acne treatment and management algorithms and guidelines,[16-21] particularly those drawn up by expert committees within the framework of the Acne Global Alliance.[22-24] Furthermore, there are numerous treatment options for acne depending on the form and severity of lesions, not only for first-line therapy but also for alternative treatments, maintenance therapy, and the specific treatment of recurring acne and scarring.[25] Adherence to expert recommendations on the systematic treatment of acne will thus ensure that patients receive appropriate treatment based on the best available evidence. A preliminary step towards assessing the level of adherence to clinical practice guidelines is to investigate prescribing patterns among physicians. Few international studies have been published in this area and very little attention has been paid to the opinion of dermatologists.[26,27] Given the lack of information on the treatment of acne in routine clinical practice in Spain, we decided to conduct a naturalistic study to investigate the practices of Spanish dermatologists treating acne.

Methods

Design and Objectives

We designed a cross-sectional, multicenter study to be performed in Spain. The primary objective was to identify acne treatment patterns among Spanish dermatologists, and the secondary objectives were to compare the treatment practices identified with those recommended in the Acne Global Alliance treatment algorithm[23] and to design a Spanish algorithm based on the opinion of the dermatologists who participated in the study. The study was conducted in routine clinical practice settings. The participants were selected from the list of dermatology specialists registered with the Spanish Academy of Dermatology and Venereology (AEDV). Participation was voluntary.

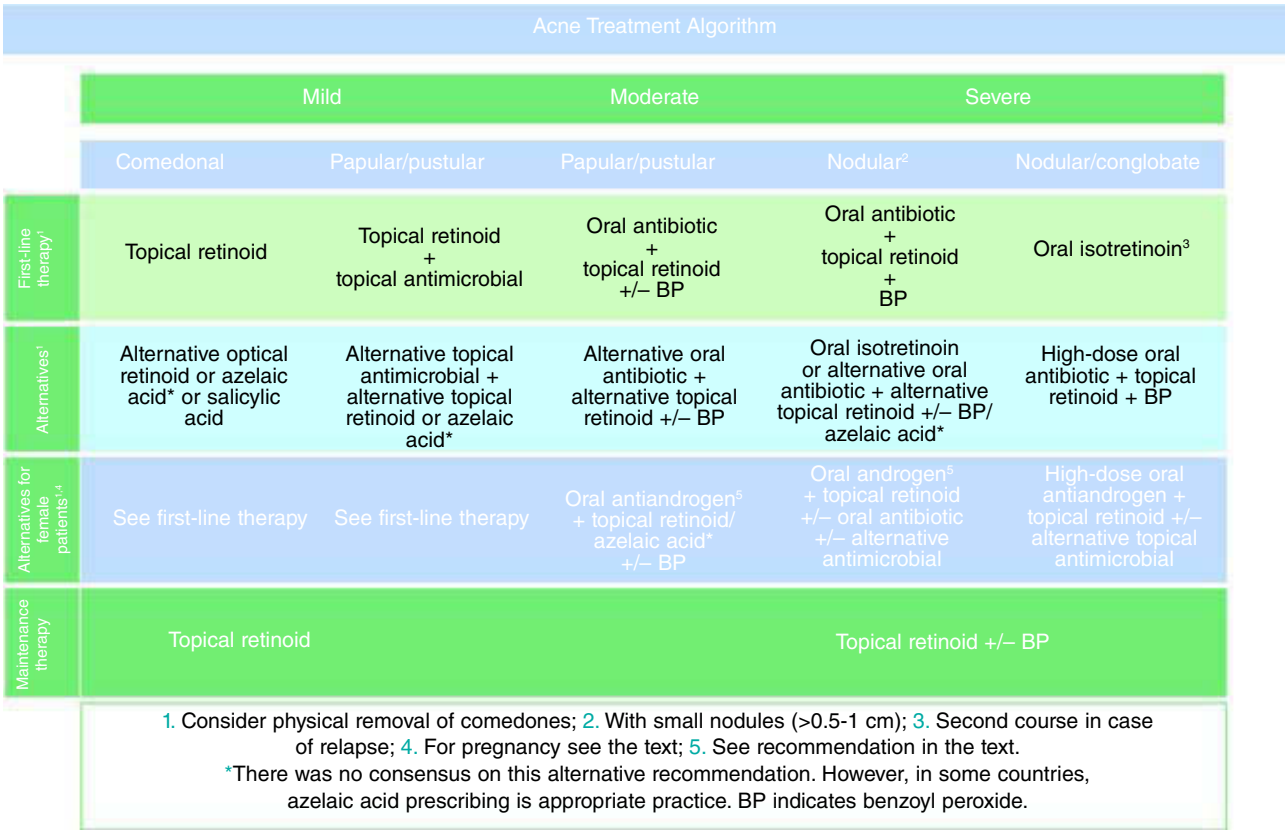

Figure 1 Treatment algorithm for acne (adapted from the Acne Global Alliance algorithm[23]).

Procedure

We performed a survey in which 4 questionnaires were distributed among the participants. The first 3 questionnaires contained information on different clinical cases while the fourth contained 5 photographs of different types of acne and a treatment algorithm based on the Acne Global Alliance treatment algorithm (Figure 1) containing various treatment options for each of the types of acne. The treatment options included topical and systemic treatments (alone or in combination) for 4 categories: first-line therapy, alternative treatments, alternative treatments for female patients, and maintenance therapy. The Acne Global Alliance treatment algorithm (Figure 1) was also distributed with the 3 clinical cases. Two-thousand copies of each of the 4 questionnaires were distributed, starting with the first clinical case and ending with the acne treatment algorithm questionnaire. The dermatologists were visited personally by sales representatives from the company Galderma S.A; the questionnaires were delivered and collected between November 8, 2007 and January 28, 2009. Descriptive results were expressed as numbers and percentages. Each of the questionnaires is described in detail below. The study, objectives, methodology, clinical cases, and treatment algorithm were designed by the FORACNE working group, which is an independent group within the Acne Global Alliance formed by 5 Spanish dermatologists with a specialist interest in acne and rosacea.

Case 1. Severe Acne Associated with Masculinization

Description: A 16-year-old girl presents with excessive sebaceous gland secretion in the center of the face and mid chest that began 14 months earlier. Her skin has a shiny, oily appearance, with visibly dilated pores. She also has a small number of closed comedones that are not readily visible. Six weeks ago, coinciding with the start of the school year, her clinical symptoms suddenly worsened, with an outbreak of painful, pustular, raised, erythematous, inflammatory lesions, measuring between 1 and 5 mm. Some of these lesions had formed pustules. There were also isolated deep, infiltrative lesions, some of which had formed abscesses, on the face and the back. Her history included painful, irregular menstruation and a tendency towards obesity. Physical examination also revealed hirsutism with a score of 18 on the modified Ferriman-Gallwey Index. An ovarian ultrasound revealed the presence of cysts. The laboratory work-up was unremarkable except for total testosterone levels at the upper limit of normal.

The following questions were asked:

1. What would you do in your practice?
2. What treatment would you prescribe?
3. According to the established treatment algorithm, the condition was classified as a case of moderate

nodular acne. Which treatment regimen would you prescribe? *a)* option 1, oral antibiotics+topical retinoids +/− benzoyl peroxide; *b)* option 2, oral isotretinoin+oral antibiotics+topical retinoids +/− benzoyl peroxide and/or topical antibiotics; or *c)* option 3, given that this is a hormonal disorder in a female patient, you would contemplate the use of antiandrogens, oral contraceptives+topical retinoids +/− benzoyl peroxide/ topical antibiotics.
4. Would you use any other treatments such as facial masks, anti-inflammatory compresses, etc? *a)* yes or *b)* no.
5. Your opinion.

Case 2. Mild Comedonal Acne

Description: A 16-year-old girl with no medical history of interest presented with "spots" that had appeared a year ago. She mentioned that she had a lot of blackheads that she treated by washing her face daily with a sulphur soap, but without great improvement. She occasionally developed "pus spots", which she burst and scratched. When this happened, she applied a lotion containing erythromycin in alcohol once or twice a day for several days and the lesions dried up. Physical examination revealed a predominance of closed and open comedones, together with several pustules and some excoriation on the forehead and the chin. The patient's face had a shiny, greasy appearance.

The following questions were asked for this case:

1. What would you do in your practice?
2. On what criteria is your diagnosis based?
3. What treatment would you prescribe?
4. According to the established treatment algorithm, this is a case of mild comedonal acne. Which treatment regimen would you prescribe (choose just one)? *a)* option 1, topical retinoids; *b)* option 2, removal of comedones+salicylic acid or azelaic acid; or *c)* option 3, topical retinoids+benzoyl peroxide.
5. Would you use any other treatments such as facial masks, anti-inflammatory compresses, etc? *a)* yes or *b)* no.
6. Your opinion.

Case 3. Moderate Papulopustular Acne

Description: An 18-year-old male patient had papulopustular lesions on the forehead but on no other areas of the face and similar lesions on the back and chest. The lesions had appeared 1 year earlier. He mentioned that he had had mild acne between the ages of 14 and 16 that had disappeared without sequelae. There was no history of relevant disease but he had been using anabolic agents to enhance his physical performance since he had signed up at the gym a year earlier. He had only used topical treatment consisting of soap-based lotions and erythromycin pads, but his condition did not improve. The blood test results that the patient brought were normal and he said he was not on any other treatment.

The following questions were asked in this case:

1. What would you do in your practice?
2. What treatment would you prescribe?
3. Choose your treatment option: *a)* option 1, benzoyl peroxide; *b)* option 2, systemic antibiotics (doxycycline)+benzoyl peroxide; or *c)* option 3, systemic isotretinoin.
4. Would you use any other treatments such as facial masks, anti-inflammatory compresses, etc? *a)* yes or *b)* no.
5. Your opinion.

Case 4. Acne Global Alliance Algorithm Questionnaire (Validation in Spain)

We have provided the following algorithm to investigate how different forms of acne are treated in clinical settings. Simply mark with a cross the treatment option that is closest to the one that you would prescribe in routine clinical practice. There are various options, different schools of thought, and different ways of treating the most common skin conditions, in this case acne. The dermatologists were asked to mark their preferred treatment option (maximum 2 options) for the different types of acne shown in the algorithm in Figure 2.

Results

In 2007, when the project started, there were 1798 Spanish dermatologists registered with the AEDV. In total, 872 dermatologists working in the public and/or the private health care sector agreed to participate in the study and were provided with the 4 questionnaires (the 3 clinical cases and the treatment algorithm questionnaire). In total, 1247 valid questionnaires were collected: 463 for case 1, 274 for case 2, 190 for case 3, and 320 for case 4 (treatment algorithm).

In case 1 (severe acne associated with masculinization), 213 (46%) of the 463 participants who returned a valid questionnaire answered the open question regarding what they would do in their practice. The administration of oral contraceptives/antiandrogens plus topical retinoids was the most common answer (given by 30% of those that answered this question). Of the 396 dermatologists who answered the closed question in which they had to choose from among 3 treatment options, 55% chose option 3 (antiandrogens/oral contraceptives plus topical retinoids with or without benzoyl peroxide/topical antibiotics) and 30% chose option 2 (oral isotretinoin plus oral antibiotics plus topical retinoids with or without benzoyl peroxide/topical antibiotics) (Figure 3). Almost half of the respondents (47%) said that they would recommend complementary cosmetic treatment.

In the case of mild comedonal acne (case 2), 113 (41.2%) of the 274 participants answered the open question regarding which treatment they would prescribe; 24% mentioned topical antibiotics plus topical retinoids, 12% mentioned topic retinoids alone, and 12% mentioned topical treatment plus hygiene measures. Thirty-one percent said they would prescribe topical retinoids either alone or in combination with topical antibiotics (13%), hygiene measures (8%), benzoyl peroxide (8%), antimicrobials (5%), or oral antibiotics (2%). Of the 254 participants who answered the closed question regarding treatment options, 62% chose the first option (topical retinoids), 29% chose the

	Mild		Moderate	Severe	
	Comedonal	Papular/pustular	Papular/pustular	Nodular[2]	Nodular/ conglobate
First choice	☐ Topical retinoid ☐ Topical retinoid + BP ☐ Topical retinoid + AB	☐ Topical retinoid ☐ Topical retinoid + BP ☐ Topical retinoid + AB	☐ Topical retinoid + BP ☐ Topical retinoid + BP + oral AB ☐ Topical retinoid + oral AB ☐ Oral AB + BP	☐ Topical retinoid + BP ☐ Topical retinoid + BP + oral AB ☐ Topical retinoid + oral AB ☐ Oral AB + BP	☐ Oral isotretinoin ☐ Oral AB ☐ Oral ABl + topical retinoid/PB
Alternatives for females	☐ Topical retinoid ☐ Topical retinoid + BP ☐ Topical retinoid + AB ☐ Azelaic acid ☐ Salicylic acid	☐ Topical retinoid ☐ Topical retinoid + BP ☐ Topical retinoid + AB ☐ Azelaic acid ☐ Salicylic acid	☐ Topical retinoid + BP ☐ Topical retinoid + BP + oral AB ☐ Topical retinoid + oral AB ☐ Oral AB + BP	☐ Topical retinoid + BP ☐ Topical retinoid + BP + oral AB ☐ Topical retinoid + oral AB ☐ Oral AB + BP ☐ Oral isotretinoin	☐ Oral isotretinoin ☐ Oral AB ☐ High-dose oral AB + topical retinoid + BP
Alternative	☐ Topical retinoid ☐ Topical retinoid + BP ☐ Topical retinoid + AB ☐ Azelaic acid ☐ Salicylic acid	☐ Topical retinoid ☐ Topical retinoid + BP ☐ Topical retinoid + AB ☐ Azelaic acid ☐ Salicylic acid	☐ Topical retinoid + BP ☐ Topical retinoid + BP/AB alone or in combination with oral antiandrogen	☐ Topical retinoid + BP ☐ Topical retinoid + BP/AB alone or in combination with oral antiandrogen	☐ Oral AB + topical retinoid ☐ Oral AB + BP ☐ High-dose antiandrogen + topical retinoid + BP
Maintenance	☐ Topical retinoid ☐ Topical retinoid + BP	☐ Topical retinoid ☐ Topical retinoid + BP	☐ Topical retinoid ☐ Topical retinoid + BP	☐ Topical retinoid ☐ Topical retinoid + BP	☐ Topical retinoid ☐ Topical retinoid + BP

Figure 2 Proposals for the treatment algorithm for different forms of acne classified by severity. BP indicates benzoyl peroxide; AB, antibiotics.

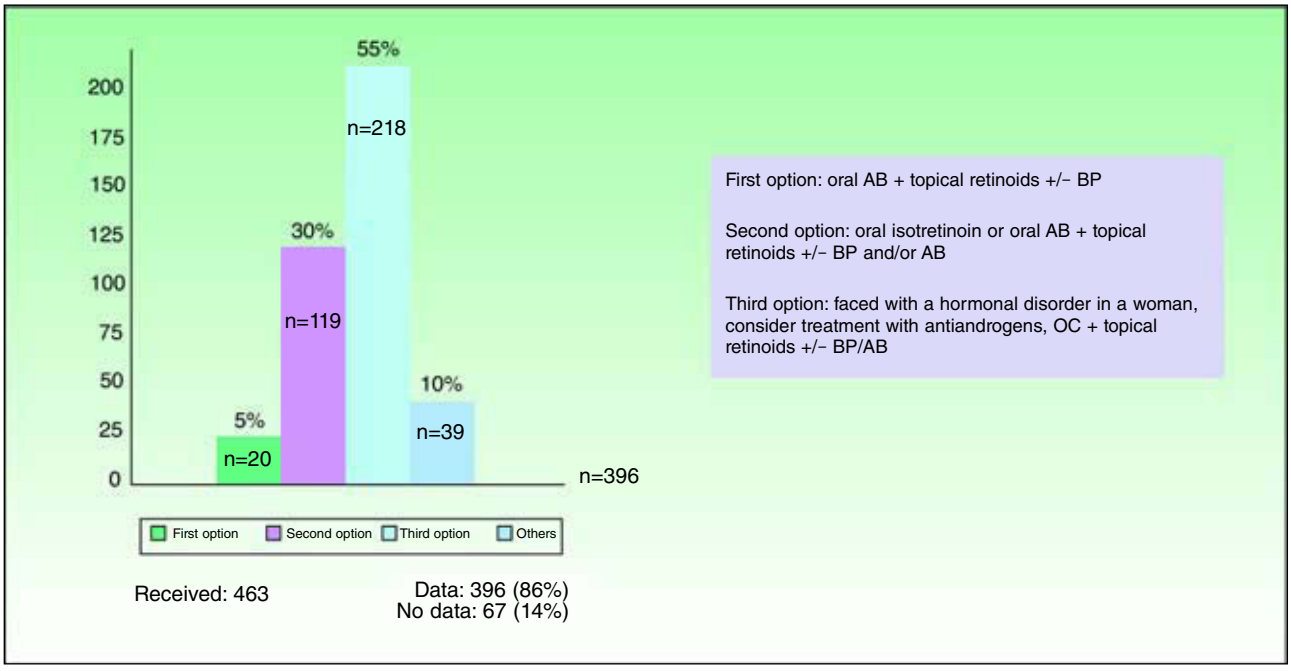

Figure 3 Treatment options chosen in clinical case 1 (severe acne with masculinization). AB indicates antibiotics; BP, benzoyl peroxide; OC, oral contraceptives.

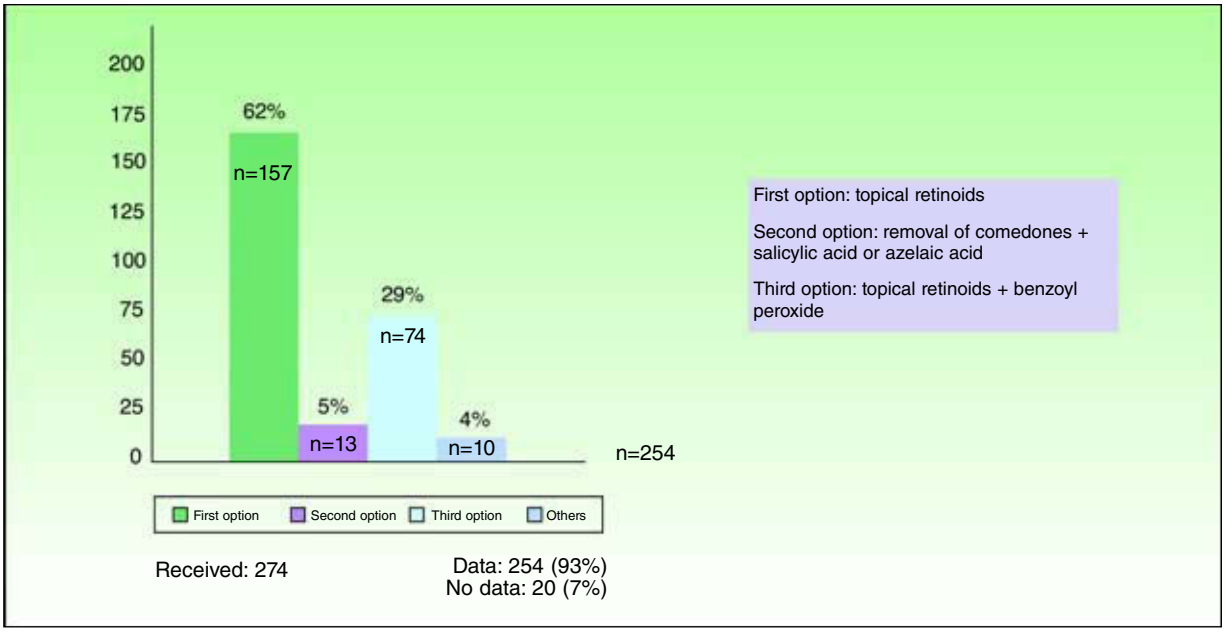

Figure 4 Treatment options chosen in clinical case 2 (mild comedonal acne).

third option (topical retinoids plus benzoyl peroxide), and 5% chose the second option (physical removal of comedones plus the use of keratolytic agents such as salicylic acid or azelaic acid) (Figure 4). Finally, 73% of the respondents said that they would recommend complementary treatments. Hygiene measures and chemical peels were the most common options mentioned.

In the case of moderate papulopustular acne (case 3), 19% of the respondents were of the opinion that the only measure required was the withdrawal of the anabolic agents; 32% said they would add an active treatment, and just 4% recommended the combined use of topical antibiotics, retinoids, and benzoyl peroxide. In the open question regarding treatment options, the majority of dermatologists said they would use a combined regimen of oral antibiotics and topical retinoids or benzoyl peroxide. In the closed question, 68% chose option 2 (systemic antibiotics [doxycycline] plus benzoyl peroxide), 12% chose option 1 (benzoyl peroxide), and 11% chose option 3 (systemic isotretinoin) (Figure 5). Finally, 49.7%

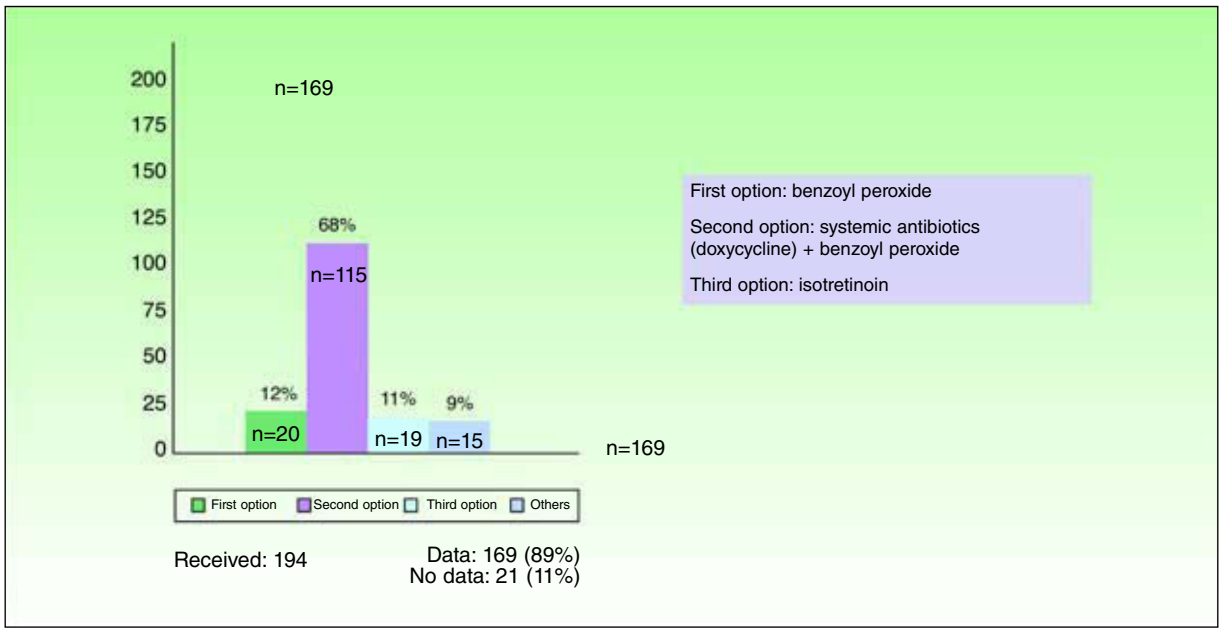

Figure 5 Treatment options chosen in clinical case 3 (moderate papulopustular acne).

Table 1 Treatment Options for Mild Acne Chosen by Spanish Dermatologists Based on the Acne Global Alliance Treatment Algorithm (320 Questionnaires Received)

Treatment	Type of Acne	
	Comedonal	Papulopustular
First-line therapy		
Valid questionnaires	316	311
	No. (%)	No. (%)
Topical retinoid	218 (69)	15 (5)
Topical retinoid+BP	47 (15)	72 (23)
Topical retinoid+AB	32 (10)	196 (63)
Other[a]	19 (6)	28 (9)
Alternative treatment		
Valid questionnaires	295	292
	No. (%)	No. (%)
Topical retinoid	27 (9)	9 (3)
Topical retinoid+BP	98 (33)	99 (34)
Topical retinoid+AB	47 (16)	96 (33)
Azelaic acid	35 (12)	23 (8)
Salicylic acid	44 (15)	12 (4)
Other[a]	44 (15)	53 (18)
Alternatives for female patients		
Valid questionnaires	265	253
	No. (%)	No. (%)
Topical retinoid	50 (19)	10 (4)
Topical retinoid+BP	37 (14)	80 (32)
Topical retinoid+AB	16 (6)	46 (18)
Azelaic acid	69 (26)	46 (18)
Salicylic acid	48 (18)	25 (10)
Other[a]	45 (17)	46 (18)
Maintenance therapy		
Valid questionnaires	284	278
	No. (%)	No. (%)
Topical retinoid	247 (87)	189 (68)
Topical retinoid+BP	37 (13)	86 (31)
Other[a]		3 (1)

Abbreviations: AB, topical antibiotics; BP, benzoyl peroxide.
[a]Chose more than 1 option.

Table 2 Treatment Options for Moderate (Papulopustular) Acne Chosen by Spanish Dermatologists Based on the Acne Global Alliance Treatment Algorithm (320 Questionnaires Received)

Treatment	Type of Acne	
	Papulopustular	Nodular
First-line therapy		
Valid questionnaires	314	274
	No. (%)	No. (%)
Topical retinoid+BP	19 (6)	8 (3)
Topical retinoid+ BP+oral AB	101 (32)	110 (40)
Topical retinoid+oral AB	110 (35)	82 (30)
Oral AB+BP	53 (17)	63 (23)
Other[a]	31 (10)	11 (4)
Alternative treatment		
Valid questionnaires	288	300
	No. (%)	No. (%)
Topical retinoid+BP	20 (7)	6 (2)
Topical retinoid+ BP+oral AB	104 (36)	15 (5)
Topical retinoid+oral AB	78 (27)	21 (7)
Oral AB+BP	75 (26)	12 (4)
Oral isotretinoin	Not applicable	222 (74)
Other[a]	11 (4)	24 (8)
Alternatives for female patients		
Valid questionnaires	275	258
	No. (%)	No. (%)
Topical retinoid+BP	69 (25)	30 (12)
Topical retinoid+BP/AB alone or in combination with oral antiandrogens	201 (73)	227 (88)
Other[a]	5 (2)	1 (0.4)
Maintenance therapy		
Valid questionnaires	284	274
	No. (%)	No. (%)
Topical retinoid	153 (54)	134 (49)
Topical retinoid+BP	122 (43)	134 (49)
Other[a]	9 (3)	6 (2)

Abbreviations: AB, antibiotics; BP, benzoyl peroxide.
[a]Chose more than 1 option.

of the respondents said that they would recommend complementary treatments. The most common treatments mentioned were hygiene measures (27%) and facial masks (13%).

In the treatment algorithm questionnaire, the most popular first-line therapy for comedonal acne was topical retinoids; the alternative treatment was topical retinoids plus benzoyl peroxide, the alternative treatment for female patients was azelaic acid and salicylic acid, and the maintenance therapy was topical retinoids (Table 1). In the case of mild papulopustular acne, the most common first-line therapy was topical retinoids plus topical antibiotics, the alternative treatment for patients in general and for female patients was topical retinoids plus benzoyl peroxide, and the maintenance therapy was topical retinoids (Table 1). For moderate papulopustular acne, most of the dermatologists chose oral antibiotics in combination with topical treatment (Table 2). In the case of severe nodular acne, the first-line therapy was oral antibiotics in combination with topical retinoids and benzoyl peroxide; the alternative treatment was oral isotretinoin and the alternative for female patients was topical retinoids with benzoyl peroxide or topical antibiotics with or without oral antiandrogens. The most common maintenance therapy for severe nodular acne was topical retinoids alone or in combination with benzoyl peroxide (Table 2). Finally, for severe nodular/conglobate acne, the most popular first-line therapy was oral isotretinoin. The alternative

Table 3 Treatment Options for Severe Nodular/Conglobate Acne Chosen by Spanish Dermatologists Based on the Acne Global Alliance Treatment Algorithm (320 Questionnaires Received)

Treatment	Nodular/Conglobate
First-line therapy	
Valid questionnaires	316
	No. (%)
Oral isotretinoin	285 (90)
Oral AB	3 (1)
Oral AB+topical retinoid/BP	6 (2)
Other[a]	22 (7)
Alternative treatment	
Valid questionnaires	283
	No. (%)
Oral isotretinoin	93 (33)
Oral AB	37 (13)
High-dose of oral AB+topical retinoid+BP	130 (46)
Other[a]	23 (8)
Alternatives for female patients	
Valid questionnaires	252
	No. (%)
Oral AB+topical retinoid	63 (25)
Oral AB+BP	33 (13)
High-dose of oral AB+topical retinoid+BP	149 (59)
Other[a]	7 (3)
Maintenance therapy	
Valid questionnaires	275
	No. (%)
Topical retinoid	140 (51)
Topical retinoid+BP	127 (46)
Other[a]	8 (3)

Abbreviations: AB, antibiotics; BP, benzoyl peroxide.
[a]Chose more than 1 option.

treatment was oral antibiotics plus benzoyl peroxide plus topical retinoids and the alternative treatment for female patients was topical retinoids plus benzoyl peroxide and antiandrogens. The most common maintenance therapy was topical retinoids alone or in combination with benzoyl peroxide (Table 3).

We used the treatment options indicated by the dermatologists in this algorithm to draw up the Spanish acne treatment algorithm (Figure 6). As can be seen, the options chosen coincided with those proposed in the Acne Global Alliance treatment algorithm.[23] Figure 7 shows the photographs used to illustrate the different forms of acne used in the acne treatment algorithm questionnaire.

Discussion

Our study is the first of its kind to analyze acne treatment practices among Spanish dermatologists in routine clinical practice settings. It therefore offers a unique insight into how acne is treated in Spain. Knowledge of prescribing patterns in dermatology practice, particularly in highly prevalent diseases that affect adolescents and young adults (as is the case with acne), is a valuable tool for modeling treatment guidelines and reference material, unifying treatment criteria, evaluating treatment effectiveness, and providing the basis for actions aimed at improving specific care measures. Appropriate treatment in the case of acne not only improves and heals damaged skin but is also key to preventing pyschological sequelae and scarring. The negative effects of acne on quality of life, particularly in terms of emotional and psychosocial impacts, and particularly in young people, has been widely documented.[28-30]

Another important contribution of this study is the development of an acne treatment algorithm that takes into account the opinion of dermatologists working in clinical practice. The resulting algorithm thus differs in some respects from existing guideline recommendations, based only on expert opinions. These differences are discussed in more detail below.

In the first clinical case analyzed, that of a 16-year-old girl with severe acne associated with masculinization, most of the dermatologists surveyed said that they would use antiandrogenic oral contraceptives in combination with topical retinoids and either benzoyl peroxide or topical antibiotics for their specific anticomedonal properties.[31] The second most popular choice was the combined use of topical treatments (retinoids, benzoyl peroxide, or antibiotics) and oral isotretinoin or oral antibiotics.

In the second case, that of mild comedonal acne, most dermatologists said they would treat this condition with a combination of topical retinoids and topical antibiotics. One fifth of the dermatologists said that they would obtain a detailed clinical history and additional analyses to establish a clear diagnosis. We believe that this answer was given by just a small proportion of dermatologists not because it is not standard practice but because it is an inherent part of the diagnostic work-up at any doctor's visit and even more so in the case of acne, a condition that is generally very easy to diagnose and classify for dermatologists. Indeed, the majority of dermatologists mentioned that they had reached the diagnosis of mild comedonal acne from the description of the lesions. The vast majority of those that completed this section said that they would treat the condition with topical retinoids, either alone or in combination with topical or oral treatments and hygiene measures. This demonstrates that clogged pores, whose main clinical manifestation is the comedo, are a familiar concept to dermatologists and explains why most of them chose topical retinoids, which have keratolytic and keratin-normalizing properties, as first-line therapy.

The third clinical case, that of moderate papulopustular acne induced by anabolic agents, had been designed to highlight the importance of questioning patients with recurrent acne. Most of these cases are seen in the postpubertal period. A large proportion of dermatologists chose withdrawal of the trigger (anabolic agents) as the main treatment strategy but only 32% deemed it necessary to add an active treatment. This second option would have been the most appropriate as changes to the hair follicle resulting from this condition—hyperkeratosis,

	Mild		Moderate	Severe	
	Comedonal	Papular/pustular	Papular/pustular	Nodular	Nodular/ conglobate
First option	Topical retinoid	Topical retinoid + AB	Topical retinoid + oral AB	Topical retinoid + BP + oral AB	Oral isotretinoin
Alternative	Topical retinoid + BP	Topical retinoid + BP	Topical retinoid + BP + oral AB	Oral isotretinoin	High-dose oral AB + topical retinoid + BP
Alternatives for females	Azelaic acid Salicylic acid	Topical retinoid + BP	Topical retinoid + BP/AB alone or in combination with oral antiandrogen	Topical retinoid + BP/AB alone or in combination with oral antiandrogen	High-dose antiandrogen + topical retinoid + BP
Maintenance	Topical retinoid	Topical retinoid	Topical retinoid Topical retinoid + BP	Topical retinoid Topical retinoid + BP	Topical retinoid Topical retinoid + BP

Figure 6 Spanish acne treatment algorithm. AB indicates antibiotics; BP, benzoyl peroxide.

hyperseborrhea, and secondary infection—are reversed more quickly with antibiotics and products capable of clearing the clogged follicle. The combination of topical antibiotics plus retinoids and benzoyl peroxide would perhaps be the treatment of choice in this case. When asked to choose from among 3 treatment options, the majority of dermatologists chose oral antibiotics (doxycycline) in combination with benzoyl peroxide as an exfoliator. The use of a topical antibiotic is not necessary as the antimicrobial function is covered by the systemic action of doxycycline. The majority choice in this case, therefore, would appear to be the most appropriate.

The responses to the last questionnaire, in which dermatologists were asked to choose treatments for different types of acne illustrated by photographs according to the Acne Global Alliance treatment algorithm, showed that Spanish dermatologists would prescribe the same treatments as those recommended by the Acne Global Alliance working group. Combined treatment was chosen as first-line therapy for all the types of acne depicted, and topical retinoids were the initial treatment of choice for mild and moderate forms of acne and for maintenance therapy. Studies analyzing acne-prescribing patterns in other countries have found that dermatologists tend to prescribe topical retinoids more often than pediatricians or general physicians.[26,27] The differences with respect to the Acne Global Alliance treatment algorithm and other guidelines lie in the limited use of topical azelaic acid and salicylic acid to treat comedonal and papulopustular acne. For Spanish dermatologists, these treatments were reserved for use as an alternative therapy in female patients.

Other differences in the Spanish algorithm are the proposed use of topical retinoids for all forms of mild acne and the combined use of retinoids and benzoyl peroxide for maintenance therapy in patients with moderate and severe acne.

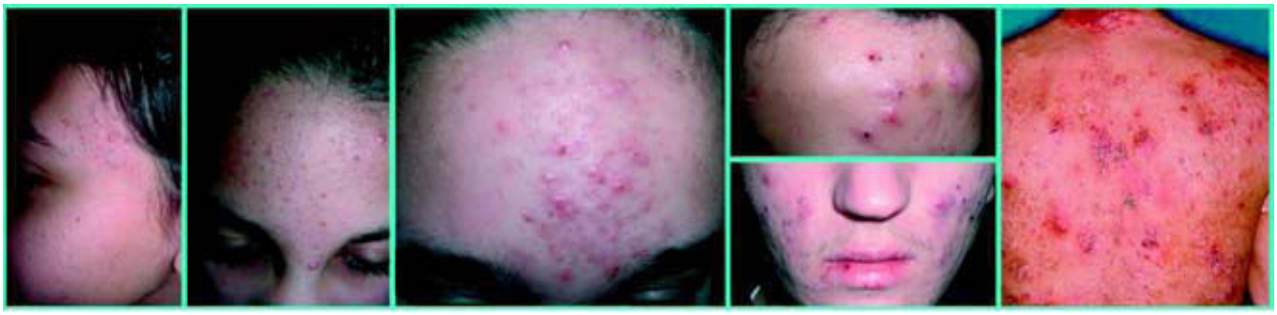

Figure 7 Representative images showing different forms of acne, in order of severity, that were used in the questionnaire designed to develop the Spanish acne treatment algorithm.

It should be highlighted that oral isotretinoin was only proposed as first-line therapy for severe nodular/conglobate acne, a treatment option consistent with the recommendations of the Acne Global Alliance algorithm. It is, however, possible, that more dermatologists would have prescribed oral isotretinoin had it been included as an option for nodular acne, or indeed for milder forms of acne. This hypothesis is based on that fact that oral isotretinoin was chosen as an alternative treatment for nodular acne by 74% of respondents, a larger proportion than that observed for all the first-line therapy options (Table 2). Accordingly, and despite the fact that we cannot include this treatment option in the Spanish algorithm due to the design of the study, we can confirm that Spanish dermatologists, and probably rightly so, would choose oral isotretinoin to treat severe nodular or nodular/conglobate acne. This problem did not arise in the French treatment algorithm as, unlike the Acne Global Alliance algorithm and ours, it does not distinguish between severe nodular acne and severe nodular/conglobate acne, and hence recommends oral isotretinoin as first-line therapy for severe acne in general.[32]

Our analysis of dermatologists' opinions regarding treatment choices for a range of clinical cases showed that the judgement of Spanish dermatologists, in general, is consistent with the recommendations of the Acne Global Alliance treatment algorithm. Nonetheless, we also observed isolated clinical practices that differed somewhat from these recommendations and were probably not based on solid scientific evidence. We therefore believe that the algorithm published in this article will serve as an extremely important clinical guidance tool and help to optimize acne treatment and ultimately benefit patients. The FORACNE group encourages Spanish dermatologists to follow the proposed algorithm.

Conflict of Interest

Dr Miquel Ribera Pibernat has received honoraria from Galderma, Isdin S.A, Pierre-Fabre, and Viñas for talks, consultancy, and participation in clinical trials.

Dr Aurora Guerra Tapia has received honoraria from Galderma, Stieffel, Ferrer, La Roche Posay, Vichy, Isdin, Roche, Viñas, and Lutsine for research projects, talks, and consultancy work.

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Dr Raúl de Lucas Laguna has received fees from Galderma for talks, consultancy work, and participation in clinical trials.

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