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Management of hidradenitis suppurativa in Tunisia: A Delphi expert consensus

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ABSTRACT

Objectives: Hidradenitis suppurativa (HS) is a chronic inflammatory disease of the hair follicles. Guidelines for the management of HS in North Africa are lacking. We aimed to develop the Tunisian consensus for the management of HS using the conventional Delphi method.

Material and Methods: A multidisciplinary panel of 33 experts in the management of HS was selected. A two-round Delphi method was conducted. The first questionnaire consisted of 134 items generated based on a review of the latest international guidelines in the management of HS.

Results: Among the 134 items proposed in the first round, 73 have reached a consensual agreement (median ≥7, and 70% or more responses were ≥7). An agreement was reached for 32 items proposed in the second round. A management algorithm was developed based on consensual items.

Conclusion: The results of this consensus represent a key step in improving the management of patients with HS in North Africa.

Keywords: Hidradenitis suppurativa, Acne inversa, Verneuil's disease, Expert consensus, Tunisia

INTRODUCTION

Hidradenitis suppurativa (HS), or acne inversa, or Verneuil's disease, is a chronic inflammatory disease of the hair follicles.[1] It is characterized by recurrent nodules, abscesses, draining sinus tracts, and scarring primarily manifesting in the axilla, genitofemoral area, perineum, gluteal area, and infra-mammary area of women.[2,3] The pathogenesis involves follicular hyperkeratosis and dilatation, follicular rupture, and chronic inflammation with architectural tissue changes.[1]

HS is a debilitating disease, which severely impairs the quality of life of patients and is often associated with altered social and sexual life and mental health problems.[4,5] There is no uniformly effective treatment for HS and different therapeutic modalities are employed.[6] While multiple HS treatment guidelines exist, in North Africa, we lack a management consensus adapted to our socioeconomic and epidemiological situation.

Objectives

We sought to develop the Tunisian consensus for the management of HS using the conventional Delphi method.

MATERIAL AND METHODS

The consensus was carried out using the two-round Delphi method. The Delphi method is an iterative technique designed to obtain a group consensus based on the opinion of a panel of selected experts through a series of structured questionnaires (referred to as rounds) with controlled anonymous feedback.[7,8] The questionnaires are completed anonymously by the experts. We opted for a two-round conventional Delphi method to avoid increasing panel attrition. The conventional method does not allow discussion among experts in a face-to-face meeting but it helps to reduce decisional biases due to group interaction and preserves anonymity.[7]

Expert panel selection

The panel of experts was selected after consulting several scientific societies (acknowledgment section) and selected based on their expertise in their respective fields and the management of HS. The panel consisted of 33 members from 11 medical disciplines: dermatology (16), family medicine (3), gastroenterology (2), infectious diseases (2), general surgery (2) plastic surgery (2), pharmacology (2), endocrinology (1), internal medicine (1), rheumatology (1), and pharmacy (1).

Item generation process

It was carried out based on research on PUBMED and Scopus using the keywords: "Hidradenitis Suppurativa," "treatment," "guidelines," and "management."

Round 1

The first questionnaire consisted of 134 items. Panelists were asked to rate their level of agreement on a 9-point Likert scale ranging from 1 (do not agree) to 9 (completely agree). After each item, the experts were invited to leave free-text comments or to rephrase questions. Medians and interquartile ranges were calculated for all the items. A consensus was considered reached for items that had a median score ≥7 and when 70% or more responses were ≥7. Items that reached a consensual disagreement (median ≤3 and 70% or more responses were ≤3) were discarded in the first round. For the rest of the items, a qualitative analysis of the comments was carried out allowing them to be presented for the second round. Treatments that are not available in Tunisia or are not approved for HS treatment, including minocycline and Janus kinase (JAK) inhibitors, were not discussed in this study. Detailed management of side effects related to the use of specific medications including antibiotics and tumor necrosis factor (TNF)-alpha inhibitors were beyond the scope of this consensus.

Round 2

This questionnaire consisted of 69 items presented along with the median rating from the entire panel during the first round and a summary of the free-text comments representing the experts' opinions. It included the items for which a consensus was not reached. Modified and newly proposed items by the expert panel were also included in the study. The same data analysis and interpretation for consensual agreement and disagreement was used in this round.

RESULTS

We received 30 responses in the first and second rounds. Among the 134 items proposed in the first round, 73 have reached a consensual agreement (median ≥7, and 70% or more responses were ≥7). Among the 69 items proposed in the second round, 32 items have reached an agreement. Details on agreement rates and mean scores for rounds 1 and 2 are shown in Table 1.

DISCUSSION

We were able to conduct a Delphi exercise with a good response rate among Tunisian experts in the management of HS. The items were generated based on a review of the latest international guidelines in the management of HS.[2,9-17] The treatment algorithm is outlined in Table 2. The results of this consensus represent a key step in improving the management of patients with HS in North Africa.

The therapeutic approach to HS is based on disease severity [Table 2]. Antibiotics represent major medications used for the treatment of HS. In several countries, the combination of clindamycin and rifampicin is indicated as second-line treatment for mild-to-moderate HS unresponsive to topical antibiotics and oral cyclins.[2,9-13,15-17] In this Tunisian study, the panel of experts argued against the use of clindamycin and rifampicin as treatment options for moderate-to-severe HS, as rifampicin is a major anti-tuberculosis drug that must be preserved for this indication. The incidence of multidrug-resistant cases of tuberculosis has increased worldwide and particularly in endemic countries, according to the World Health Organization.[18] The use of rifampicin in the treatment of HS in endemic countries would increase the risk of the emergence of multi-resistant tuberculosis. Furthermore, no benefit was shown of the adjunction of rifampicin to clindamycin in the treatment of HS. A recent retrospective study comparing the clinical and US responses between two

Table 1: Results of the two-round Delphi for the management of HS.

Consensus items	Median and percentage of agreement	
	First round	Second round
Diagnosis		
• The diagnosis of HS should be made early by a dermatologist or healthcare professional with experience in the management of HS.	9 (89.2)	
• The diagnosis of HS is based on the following criteria: 1. Painful nodules and abscesses leading to suppuration, fistulization, and/or the formation of scars 2. Typical topography: Armpits, inguinal folds, perianal and/or perineal region, inframammary folds, buttocks, and groin 3. Chronic and recurrent disease course: At least two outbreaks in 6 months. All three criteria must be present for the definitive diagnosis of HS.	9 (100)	
• The management of HS is multidisciplinary	9 (85.8)	
• Any nodular or cystic lesion, any fibrous scar or fistula, or any abscess located in the axillary, inguinal, perineal, or breast regions, should suggest the diagnosis of HS.		8 (96.7)
• The diagnosis of HS is made based on clinical findings. No additional testing is necessary for the diagnosis of HS.	8 (75)	
• Additional tests are useful depending on the clinical features: 1. Ultrasound and perineal MRI can be required for deep lesions to help distinguish HS from CD. 2. Biopsy is useful if associated squamous cell carcinoma is suspected.		8 (96.7)
• The microbial flora of HS lesions varies depending on the stage of the disease	8 (74.1)	
• Antibiotic treatment of HS is empirical and does not require bacteriological samples or blood cultures.	8 (78.5)	
• It is not indicated to take microbiological samples in patients with HS, except in the case of fever, when other diagnoses are suspected.	8 (72.6)	
Severity assessment		
• The Hurley staging is indicated to assess the initial severity of HS in the different affected areas.	9 (94.4)	
• The Hurley staging is not a dynamic measure and should only be used to describe an affected area.	9 (75.9)	
• The Hurley staging does not define the overall severity of the disease. Each individual affected area should be assessed independently.		8 (100)
• Management strategy is planned based on Hurley staging,		8 (79.3)
• The Sartorius score is time-consuming and not suitable for assessing the severity of HS in daily practice.		8 (76.7)
• The severity of the disease can be assessed, in clinical practice, using the IHS4 score. IHS4=number of nodules (multiplied by 1) + the number of abscesses (multiplied by 2) + the number of fistulas (multiplied by 4). The total value makes it possible to classify HS into mild (score less than or equal to 3), moderate (score from 4 to 10), and severe (score greater than or equal to 11).	8 (72.4)	
• The "Dermatology Life Quality Index (DLQI)," a short self-questionnaire that the patient can fill out quickly during the consultation, is indicated for the follow-up of patients with HS.	8 (79.3)	
• The assessment of pain in intensity on a visual analog scale or a numerical scale from 0 to 10 is indicated for the follow-up of patients with HS	8 (76)	
• The HiSCR is used to assess the response to treatments.	8 (75.9)	
• HS-PGA is used to assess response to medical treatment.		8 (86.7)
Screening for comorbidities		
• Early identification of comorbidities is important for better management of patients with HS.	9 (100)	
• Smoking habits should be evaluated in patients with HS	9 (93.2)	
• Obesity should be screened in patients with HS	9 (100)	
• Metabolic syndrome should be screened for in patients with HS	9 (93.2)	
• Hypertriglyceridemia should be screened for in patients with HS	8 (82.8)	
• Cardiovascular manifestations of atherosclerosis should be screened in patients with HS.	8 (79.3)	
• Diabetes (type 2) should be screened for in patients with HS.	9 (89.3)	
• Hypertension should be screened for in patients with HS	8 (72.6)	
• Follicular occlusion tetrad should be screened in patients with HS	9 (82.8)	
• CD should be screened for in patients with HS	8 (78.6)	
• Spondyloarthropathy should be screened in patients with HS		8 (93.3)

(Contd...)

Table 1: *(Continued).*

Consensus items	Median and percentage of agreement	
	First round	**Second round**
• Polycystic ovary syndrome should be screened for in patients with HS		8 (76.7)
• Depression/anxiety should be screened in patients with HS	9 (93.1)	
• Sexual dysfunction should be screened for in patients with HS	7 (70.4)	
• Inflammatory bowel diseases must be screened systematically.	8 (75.9)	
• The potential for malignant transformation in HS patients should be recognized.		8 (86.7)
• Screening for depression and anxiety is systematic initially and during follow-up.	8 (93.1)	
Non-pharmacologic interventions		
• Smoking cessation is encouraged as an adjuvant treatment and must be systematically included in the management of patients with HS	9 (96.9)	
• Smoking is associated with severe forms of the disease.	8 (75.9)	
• Weight reduction is strongly encouraged as an adjuvant treatment for HS, along with regular screening for obesity.	9 (100)	
• Reducing body mass index (obese patient; BMI≥30) may be effective in reducing long-term disease severity.	9 (93.1)	
• Higher BMI has been associated with increased severity of HS and contributes to the exacerbation of friction.	9 (100)	
• There is insufficient evidence on the benefit of dietary restrictions in HS.	8 (74.9)	
• Zinc gluconate can be prescribed, despite a low level of evidence, in cases of mild to moderate HS as an adjuvant treatment at a dose of 90 mg/d.		7 (70)
• There is insufficient evidence to suggest vitamin D supplementation in patients with HS.		8 (86.7)
• The severity of pain in patients with HS should be assessed using the visual analog scale (VAS).	8 (82.8)	
• Acetaminophen is indicated as the first-line treatment for pain in HS.	7 (71.5)	
• Tramadol is indicated for pain refractory to first-line analgesics.		8 (83.3)
• The use of opioids is reserved for severe pain not controlled by first-line treatments.	8 (78.5)	
• Given the risk of complications, the use of anti-inflammatory drugs (NSAIDs and corticosteroids) for analgesic purposes is not recommended.	8 (75.9)	
• When assessing patients, particular attention should be paid to their psychological status.	9 (100)	
• Screening for depression and anxiety should be a routine part of clinic visits.	9 (89.7)	
• The choice of dressings should be individualized based on the location of the lesion and the amount of exudate and should be made based on the expertise of the physician and taking into account cost and patient preference.	9 (96.9)	
• The use of antiseptic washes (chlorhexidine, and zinc pyrithione.) is indicated in all patients with HS.	`	
• Daily washing with soap and water is indicated in case of HS flare-ups.	8 (86.3)	
• The interest of topical antiseptics in minimizing bacterial colonization and reducing inflammation has not been validated compared to soap and water.		7 (79.3)
Topical and intralesional therapies		
• Clindamycin 1% Topical Lotion is indicated for the topical treatment of mild to severe forms of HS.	7 (79.4)	
• Topical fusidic acid should be avoided in the topical treatment of HS due to the risk of bacterial resistance.		7 (70)
• Topical antibiotics should be used for short periods due to the risk of the emergence of bacterial resistance.	8 (92.8)	
Systemic antibiotics in HS		
• The prescription of systemic antibiotics in HS is indicated in the event of a flare-up, before surgery, and as prophylactic treatment.	8 (75)	
• Antibiotics should be used in severe forms. The duration of treatment not exceeding 21 days.		8 (93.3)
• Prophylactic antibiotic treatment is indicated starting from 4 recurrences per year.		7 (79.3)
• Prophylactic antibiotic treatment is indicated straight away when the lesions are extensive or involve several anatomical sites.	7 (74.1)	
In HS without fistulas or fibrous scarring process		
• In the event of a flare-up, it is indicated to use oral antibiotics for 7 days, using the combination amoxicillin-clavulanic acid 50 mg/kg/d for 7 days (TID, maximum 4.5 g/day) or pristinamycin: 1g TID.	8 (82.2)	

(Contd...)

Table 1: *(Continued).*

Consensus items	Median and percentage of agreement	
	First round	**Second round**
• Treatment with cyclins is prescribed as a prophylactic treatment: doxycycline 100 mg/day or lymecycline 300 mg/day.	8 (74.1)	
• Cyclins are prescribed for 3–6 months with a clinical evaluation at 12 weeks.	8 (84.6)	
• If cyclins fail or are contraindicated: the prescription of cotrimoxazole 400/80 mg/day could be considered after balancing the expected benefit against the risk of serious drug eruptions.		7 (73.3)
In HS with fistulas or fibrous scarring process		
• Combinations of Ceftriaxone 1 g/day (<60 kg)–2 g/day (>60 kg) IV, IM plus metronidazole PO 3×500 mg/day or Levofloxacin (500 mg, 1–2 times/day) plus clindamycin (600 mg, 3 times a day) are indicated for a maximum duration of 15–21 days		7 (73.3)
• Metronidazole/Moxifloxacin/Rifampicin therapy (the recommended dosage is moxifloxacin 400 mg per day, metronidazole 500 mg 3 times per day, and rifampicin 600 mg per day or 10 mg/kg once per day) is problematic in Tunisia. Moxifloxacin and rifampicin are two major anti-tuberculosis drugs, they must be preserved for this indication.		7 (73.3)
• Ertapenem (1 g IV) can be proposed as third-line therapy for cases of severe HS flares that do not respond to oral antibiotic therapy or as a gateway to surgery for a maximum duration of 15–21 days.		7 (76.7)
• The use of broad-spectrum antibiotics can only be occasionally integrated into a therapeutic strategy. It is not indicated to repeat these cures due to the purely suspensive nature of antibiotics and their major risk of emergence of resistance.	9 (96.2)	
• Treatment with cyclins is prescribed as a prophylactic treatment: doxycycline 100 mg/day or lymecycline 300 mg/day.	8 (80.8)	
• Cyclins are prescribed for a period of 3–6 months with a clinical evaluation at 12 weeks.	8 (80.8)	
• If cyclins fail or are contraindicated: the prescription of cotrimoxazole 400/80 mg/day could be considered after balancing the expected benefit against the risk of serious drug eruptions.	7 (80)	
Systemic immunosuppressants		
• The level of evidence is insufficient to recommend the use of systemic corticosteroids, dapsone, and ciclosporin A in HS.		8 (80)
Hormonal therapies		
• Hormone therapy is indicated as adjuvant therapy for women with comorbidities such as diabetes, polycystic ovary syndrome, or hyperandrogenism.	7 (70.4)	
• Metformin can be offered to patients with concomitant diabetes or polycystic ovary syndrome. The dosage is 500 mg 2–3 times a day.	7 (70.4)	
• Cyproterone acetate is an anti-androgen proposed in combination with estrogen for patients with signs of hyperandrogenism.		7 (73.3)
• In the absence of contraceptive need, it is not indicated to prescribe estrogen-progestogen therapy to treat HS.		7 (76.7)
Biologics		
• The use of biologics (TNF-alpha inhibitors, IL-1 inhibitors, IL-12 and IL-23 inhibitors, IL 17 inhibitors) is indicated in patients with moderate-to-severe HS recalcitrant to well-conducted antibiotic treatment for 6 weeks.	8 (77.8)	
• In patients with an associated disease such as spondyloarthritis or inflammatory bowel disease, TNF-alpha inhibitors are considered a first-line treatment in the management of HS without waiting for the response to antibiotics.	8 (81.5)	
• TNF-alpha inhibitors should be considered first-line biological treatments	7 (73.1)	
• Infliximab and adalimumab are effective TNF-alpha inhibitors in the treatment of HS. Etanercept is not effective in the treatment of HS.	7 (76)	
• Adalimumab is the TNF-alpha inhibitor indicated as the first-line biological treatment for HS.	8 (76)	
• Adalimumab is administered subcutaneously: 160 mg at week 0, 80 mg at week 2, and 40 mg weekly starting at week 4.	8 (80)	
• Adalimumab reduces the need for surgical procedures (incision and drainage).	7 (80)	
• Infliximab is indicated for moderate-to-severe HS refractory to adalimumab and administered intravenously at a dose of 5 mg/kg at weeks 0, 2, and 6.	7 (76.2)	

(Contd...)

Table 1: *(Continued).*

Consensus items	Median and percentage of agreement	
	First round	**Second round**
• There is a need for regular monitoring which will lead to the discontinuation of treatment if the expected efficacy is not observed in 3–6 months.	8 (83.4)	
Light, laser, and energy-based devices		
• Nd-YAG laser (neodymium-doped yttrium aluminum garnet) for hair removal is indicated for preventive purposes in the treatment of HS in the absence of fistulas or fibrous scarring process or after surgical treatment to prevent recurrences.		8 (90)
• CO_2 laser can be used for extensive chronic HS lesions in Hurley II/III stages. It is used for excision, deroofing, and vaporization of affected skin.		7 (75.9)
• CO_2 laser has the advantage (compared to standard excision) of less bleeding and better visualization of affected areas with sparing of healthy tissue.	7 (75)	
• The fractional CO_2 laser is useful to help improve post-surgical retracting scars and scar bands.		7 (86.7)
• Only dermatologists are authorized to treat patients with HS by laser or light therapy.	8 (72)	
Surgical modalities		
• The choice of surgical treatment depends on the clinical presentation. It can be considered an emergency procedure in case of abscesses, or scheduled in advanced disease.	9 (100)	
• Incision and drainage are indicated to relieve pain associated with acute and isolated inflammatory lesions of HS.	8 (92.8)	
• In case of an abscessed, fluctuating nodule, incision, and drainage or deroofing with a punch can be proposed. This treatment does not constitute a definitive treatment.	8 (81.5)	
• Deroofing of small lesions with a punch or by other methods is preferable to incision/drainage.		7 (80)
• For persistent nodules in the Hurley I stage or sinuous tracts (tunnels and fistulas) in the Hurley II stage, a complete excision limited to the lesion could be performed, with or without direct suturing, or deroofing with the removal of the roof of these lesions used as a tissue-sparing technique.	8 (77.8)	
• For advanced regional disease in Hurley stage II and especially III, wide excision is proposed under general anesthesia: a margin of safety of healthy lateral (1–3 cm) and deep skin is indicated		7 (93.3)
• If primary closure is impossible, closure is done using secondary healing, skin grafting techniques, and local flaps	8 (81.4)	
• Wide local excision is indicated to treat advanced disease (Hurley stage II and Hurley stage III)	8 (85.2)	
• Surgical treatment must be planned from the outset and integrated into the therapeutic approach in association with systemic treatments in the Hurley II and Hurley III stages.	8 (78.6)	
• Local-wide excision gives the best therapeutic results with the lowest rate of recurrence in the treated area.		8 (93.3)

DLQI: Dermatology life quality index, HiSCR: The hidradenitis suppurativa clinical score, HS: Hidradenitis suppurativa, HS-PGA: The HS physician global assessment, IHS4: International hidradenitis suppurativa severity scoring system, Nd-YAG laser: Neodymium-doped yttrium aluminum garnet, NSAIDs: Non-steroidal anti-inflammatory drugs, VAS: Visual analog scale, MRI: Magnetic resonance imaging, CD: Crohn's disease, CO_2: Carbon dioxide, TNF: Tumor necrosis factor, IL: Interleukin, IV: Intravenously, IM: intramuscular, PO: Per os, BMI: Body mass index, TID: Three times a day

groups (clindamycin and rifampicin versus clindamycin alone) found comparable results.[19] Furthermore, hepatic cytochrome p450 enzyme induction due to rifampicin reduces blood levels of clindamycin by about 90% after 2 weeks of treatment, this enzymatic induction can lead to the collapse of the blood levels of clindamycin, which increases the risk of the emergence of drug resistance.[20] Other large-spectrum antibiotic treatments and combinations could be used safely for HS flare-ups [Table 2].

Biologic treatment and prophylactic antibiotic regimen are the cornerstones of the management of relapsing HS. In our study, prophylactic treatment is indicated for patients who experience four or more HS flare-ups a year. TNF-alpha inhibitors should be considered as first-line treatment options for patients with inflammatory bowel disease or spondyloarthropathy or a second-line option in cases unresponsive to antibiotics [Table 2]. In the literature, the choice of prophylactic antibiotic treatment usually varies according to the severity of the disease and Hurley's staging.[2,9-13,15-17] In our consensus, however, the same prophylactic antibiotic regimen is indicated regardless of the existence of fistulas and fibrous scarring process. Cyclins are indicated for 3–6 months with a clinical evaluation at 12 weeks. This decision is motivated by recent data. A large prospective and international cohort study conducted to

Table 2: Hidradenitis suppurativa management algorithm.

Management of patients with hidradenitis suppurativa		
• Severity assessment: 1. Initial assessment and during follow-up: Hurley score/DLQI/VAS scale for pain 2. Evaluation of treatment response: HiSCR/IHS4/HS-PGA • Systematic screening for comorbidities: Smoking, obesity, hypertriglyceridemia, diabetes (type 2), hypertension, metabolic syndrome, IBD, spondyloarthropathy, polycystic ovary syndrome, depression, anxiety, and sexual dysfunction. • Non-pharmacological interventions: 1. Smoking cessation/weight reduction if obesity 2. Treatment of associated pain 3. Psychological support 4. Daily showers with soap or antiseptics, adapted dressings if needed.		
	No fistulas or fibrous scarring (Hurley stage I)	**Existence of fistulas or fibrous scarring process (Hurley stage II/III)**
Treatment of flare-ups	- Amoxicillin-clavulanic acid 50 mg/kg/d (TID, maximum 4.5 g/day) or pristinamycin: 1g TID. Duration=7 days±Surgery: Incision and drainage or deroofing	• If no response to first-line treatment: 1. Ceftriaxone 1 g/day (<60 kg)–2 g/day (>60 kg) IV, IM plus metronidazole PO 3×500 mg/day or 2. Levofloxacin (500 mg, 1–2 times/day) plus clindamycin (600 mg, 3 times a day) • Maximum duration=15 to 21 days • No: rifampicin or ciprofloxacin • If no response: consider ertapenem
Prophylactic treatment (>4 recurrences/ year; or several anatomic sites involvement)	1. Doxycycline 100 mg/day or lymecycline 300 mg/day 2. If unresponsive or contraindication to cyclins: cotrimoxazole 400/80 mg/day could be considered. Duration: 3–6 months; clinical evaluation at 12 weeks.	
If no response to antibiotics; or in patients with IBD or spondyloarthropathy	TNF-alpha inhibitors: • Adalimumab: 160 mg week 0, 80 mg at week 2 and 40 mg weekly starting at week 4 • Infliximab is indicated for moderate-to-severe HS refractory to adalimumab • Evidence supporting the efficacy of etanercept for HS is low.	
Treatments to achieve long-lasting remission	Laser hair removal	Surgery +++: • Deroofing (Hurley II), large excision (Hurley II and III) • CO_2 laser (excision and deroofing) • Laser hair removal.
Hormonal treatment	Only in women with comorbidities such as diabetes, polycystic ovary syndrome, or hyperandrogenism	

IBD: Inflammatory bowel disease, CO_2: Carbon dioxide, DLQI: Dermatology life quality index, HiSCR: The hidradenitis suppurativa clinical score, HS: Hidradenitis suppurativa, HS-PGA: The HS physician global assessment, IHS4: International hidradenitis suppurativa severity scoring system, TNF: Tumor necrosis factor, VAS: Visual analog scale, IV: Intravenously, IM: Intramuscular, TID: Three times a day

assess the efficacy of oral tetracyclines versus the combined wide-spectrum antibiotics showed no significant difference in the percentage of patients reaching the hidradenitis suppurativa clinical score between the tetracycline group (40.1%) and the clindamycin and rifampicin group (48.2%).[21]

In our study, a consensus was not reached regarding the use of systemic corticosteroids, ciclosporin A, and retinoids. Acitretin is indicated as second or third-line treatment in HS unresponsive to topical and oral antibiotics and may be beneficial in a subgroup of patients with follicular HS.[2,9-13,15-17] Isotretinoin efficacy in the treatment of HS is however controversial.[22]

This expert consensus emphasizes the importance of treatment options that would induce long-term remission. It depends on Hurley's staging. For patients with Hurley I stage, hair laser removal is indicated. The rationale for its use is supported by the primary follicular pathogenesis of HS. neodymium-doped yttrium aluminum garnet (Nd: YAG) laser reduces inflammatory lesions and induces partial or complete remissions.[23,24] Its efficacy in Hurley II and III

stages is however limited.[25] For patients with Hurley stage II, limited local excisions, deroofing, or carbon dioxide (CO_2) laser ablation are indicated. For patients with Hurley stage III, wide surgical excision or CO_2 laser ablation of involved areas can induce remission but are associated with increased downtime and scarring.

CONCLUSION

This is the first North African expert consensus on the management of HS. The main limitations are related to the absence of large prospective randomized studies evaluating treatment options of HS in Tunisia in particular and North Africa in general. We believe however that this consensus would lead to optimized care for patients with HS in developing countries. We emphasize the importance of reevaluating the treatment recommendations in light of our better understanding of the pathogenesis of HS.

Authors' contributions

All authors contributed to the research study. Noureddine Litaiem, Meriem Fazzani, Marouen Ben Kahla, Amina Aounallah, Emna Bel Hadj Mabrouk, Hajer Kandara, Rym Ennayfer, Imen Boukhris: Drafting of the Manuscript. Noureddine Litaiem, Meriem Fazzani, Faten Zeglaoui: Design of the study, Collection and Analysis of data. Noureddine Litaiem, Faten Zeglaoui: critical review of the manuscript.

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Ethical approval

Institutional Review Board approval is not required according to the Tunisian regulation.

Declaration of patient consent

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There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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