

Original Article:

Hidradenitis Suppurativa: Current Trends of Treatment in Bangladesh

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Abstract

Background: Hidradenitis suppurativa (HS) is a chronic, recurrent, debilitating dermatosis. Management of HS remains a challenge owing to lack of a curative medical treatment, potential resistance of recommended antibiotics and higher cost of biologics. **Objectives:** The study aimed to assess the current trends in treatment patterns of Hidradenitis suppurativa in Bangladesh. **Methods:** The cross-sectional study was conducted between January 2023 and March 2023 among 76 dermatologists from all over Bangladesh. A pretested, semi-structured questionnaire containing 13 questions targeted mainly prescribing patterns based on their regular clinical practices. The data has been collected through both online and in-person interviews. **Results:** The study found that topical+systemic antibiotics were the most frequently used treatment modality for HS in all severity groups. Doxycycline was the most preferred systemic antibiotic, followed by Clindamycin. Most of the dermatologists (79%) did not prescribe the combination therapy of clindamycin + rifampicin as a reason for drug resistance (51.7%) and unavailability (46.6%). However, 46% prioritized isotretinoin as non-antibiotic treatment and 78% have never given biologics for HS treatment. When it comes to surgical intervention, almost half (43.4%) of the dermatologists never performed any surgical procedure in clinical practices and they referred the patients to a plastic surgeon (30.2%). The study explored the challenges of HS treatment in Bangladesh, including the chronic nature of the disease (76.3%) and patients not compliant with prescribed treatment (52.6%) as challenges in treating HS treatment. **Conclusion:** Identifying and addressing barriers to achieving expertise in the treatment of HS can help provide access to high-quality care for patients with HS.

Key word: Hidradenitis Suppurativa, combination therapy, non-antibiotic therapy, Biologics.

Introduction:

A persistent skin disorder named Hidradenitis suppurativa (HS) can have a detrimental effect on a person's physical, psychological, and social well-being. HS is a persistent, recurring, inflammatory skin disorder that affects intertriginous skin and is frequently accompanied by a number of systemic comorbidities.¹ Globally, the true prevalence of HS remains unclear; in Europe and the US, the estimated HS general frequency

varies from 0.00033% to as high as 4.1 percent.² The majority of HS prevalence estimates came from the US, Australia, and Europe; especially in Asia, a small number of HS studies were conducted. Given that HS is still a condition that is commonly misdiagnosed and underdiagnosed, the true worldwide prevalence may be higher. The development and maintenance of HS are influenced by several genetic, environmental, and immunologic parameters. It is

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mostly connected to follicular occlusion, which may arise from a variety of biological processes, such as follicular hyperplasia and hyperkeratinization.³

The clinical course is quite unpredictable and can range from mild clinical presentation, which is defined by the development of papules, pustules, and nodules, to severe cases with deep abscesses, draining sinus tracts, and keloid scars.⁴ The intertriginous regions, specifically the axillae and anogenital regions in both sexes, as well as the submammary folds in women, are the areas most frequently affected. The detrimental impacts on a patient's quality of life frequently lead to social disengagement, unemployment, despair, and suicidal ideation due to intense pain, pruritus, unpleasant discharge, sleep, sexual dysfunction, and low self-esteem.⁵⁻⁶ Additionally, numerous comorbidities have link to HS, including cardiovascular disease, obesity, anxiety, depression, diabetes, polycystic ovarian syndrome, inflammatory bowel disease, spondyloarthritis, and other inflammatory disorders.⁷⁻⁸ Delay in diagnosis, improper or inadequate illness management, and unpredictable disease development all contribute to the disease's late recognition.

Healthcare professionals face difficulties in managing patients with HS, particularly when it comes to the long-term care of a condition that is frequently resistant to treatment. A wide range of therapeutic methods, including topical medications, systemic medicines, and procedural techniques, are used in HS management strategies. Antiseptic washes, steroid injections, topical and oral antibiotics (as single agents or in combination), retinoids, dapsone, oral immunomodulators, oral contraceptive medicines, and antitumor necrosis factor (anti-TNF) therapy are examples of common medical therapy techniques. The surgical procedure includes a skin flap or graft, full excision with closure by secondary intention, narrow margin excision, and incision and drainage for acute flares.⁹ It is often necessary to use two or more of these medicines in combination to achieve a therapeutic response.¹⁰

Modern modalities like biologics are particularly beneficial in moderate-to-severe HS. However, there are many constraints to employing modern treatment techniques in Bangladesh, such as the availability of drugs, the expense of treatment, insufficient experts, and patient noncompliance with

treatment. Dermatologists in our country are also literarily little known about the treatment preferences and challenges of HS. The present study aimed to observe the management strategies of HS and treatment preferences among dermatologists, along with the reported challenges in treating HS in Bangladesh.

Materials & Method:

It was a descriptive type of cross-sectional study conducted between January 2023 and March 2023. The study got responses from 76 dermatologists across Bangladesh to observe dermatologists' treatment preferences for treating Hidradenitis Suppurativa. The study instrument was a questionnaire containing 13 questions targeting mainly prescribing patterns of treatment modalities, which was developed and pretested by expert dermatologists. The data has been collected through both online and in-person interviews. Informed written consent was obtained using the cover letter enclosed with the questionnaire. Respondents were asked to give their responses based on their regular clinical practices. The BMDC (Bangladesh Medical and Dental Council) recognized consultant groups' dermatologists who gave the comprehensive HS management pattern were included and the dermatologists who were not willing to participate were excluded from the study. Collected data were analyzed descriptively by the statistical software SPSS (Version 26).

Results:

Characteristic	n (%)
Practicing experience (After post- graduation)	
< 5 years	18(23.7)
5 – 10 years	18(23.7)
11-15 years	19(25)
16-20 years	8(10.5)
>20 years	13(17.1)
Practice setting	
Government	15(19.7)
Private	30(39.5)
Both	31(40.8)
Region of practice	
Barisal	nil
Chittagong	5 (6.6)
Dhaka	47 (61.8)
Khulna	6 (7.9)
Mymensingh	3 (4)
Rajshahi	7 (9.2)
Sylhet	8 (10.5)
Rangpur	nil
Number of patients seeing (in last one year)	
≤ 10	55(72.4)
11-20	13(17.1)

Table I found the demographic characteristics of the participants. The findings revealed that, after post-graduation, 19 (25%) dermatologists are practising with their experience for 11–15 years, followed by 18 (23.7%) respondents for both <5 years and 5–10 years. Among the participants, 31 (40.8%) are both government and private practitioners, and 47 (61.8%) are practising in the capital, Dhaka. The findings revealed that topical + systemic antibiotics were the most frequently used by around 50% of the treatment modality for HS in all severity groups. In mild cases, only topical (35%) was used as a second preferred treatment modality, whereas in severe and moderate HS cases, isotretinoin was used as a second treatment modality Figure 1.

Most frequently used treatment modalities in HS

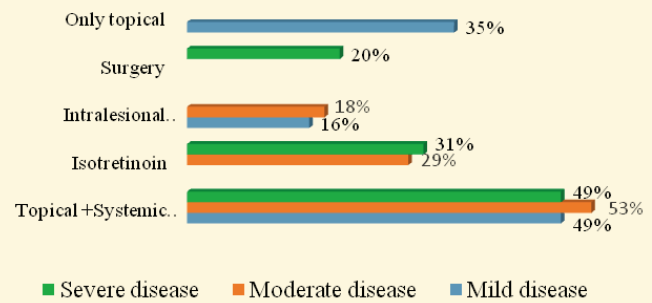


Figure 1: Commonly used treatment modalities in Hidradenitis Suppurativa.

Preference on systemic antibiotics to treat HS

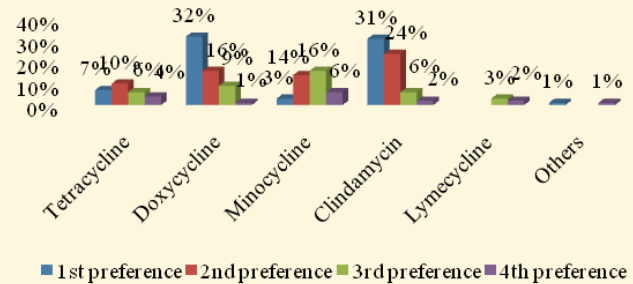


Figure 2: Preference on systemic antibiotics for the treatment of Hidradenitis Suppurativa

Figure 2 reported that, among systemic antibiotics, as the first preference, Doxycycline was mostly preferred, followed by Clindamycin. As a second preference, clindamycin was mostly preferred, followed by doxycycline. Minocycline was more effective in the circumstances of the third preference.

Among all the participants, 79% mentioned that they did not prescribe the combination therapy of clindamycin + rifampicin, while 21% of participants preferred the combination treatment. The reason for not using combination therapy has been explored in Figure 3.

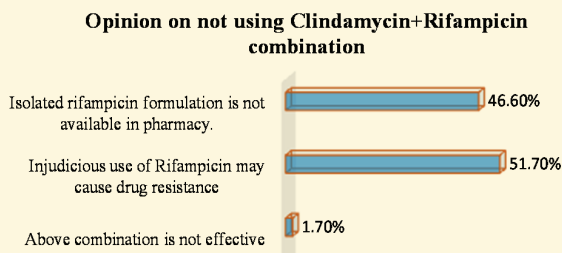


Figure 3: Opinion on not using Clindamycin+Rifampicin combination

Figure 3. Most of the dermatologists (51.7%) narrated that injudicious use of Rifampicin might cause drug resistance, followed by 46.6%, who mentioned that the isolated Rifampicin formulation was not available in pharmacies. The remaining 1.7% of dermatologists said that the combination of Clindamycin+Rifampicin was not effective for the treatment of HS.

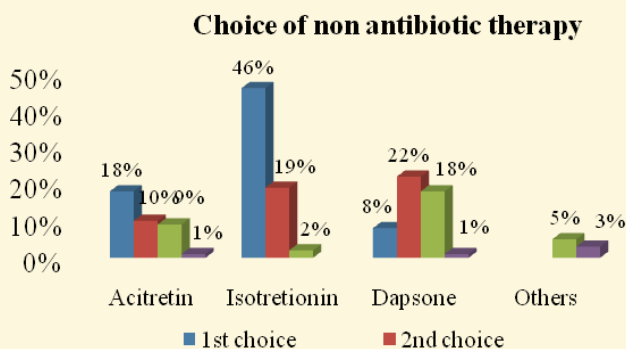


Figure 4: Choice of non-antibiotic therapy (n=76)
 Figure 4 documented that the majority of dermatologists (46%) prioritize isotretinoin when selecting a non-antibiotic treatment. Dapsone was the second choice among the participants (22%), followed by isotretinoin (19%). Nonetheless, the dermatologist recommended Acitretin between the first and third choice, but the recommendation ratio was low in comparison to other treatments. However, 78% of dermatologists have never given biologic prescriptions for HS Figure 5.

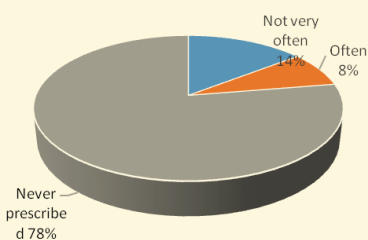


Figure 5: Frequency of prescribing Biologics

When it comes to surgical intervention, the study found that the majority of participants (43.4%) never performed any surgical procedure in clinical

practice and referred the patients (30.2%) to a plastic surgeon. A minimum portion of participants performed surgical intervention; those were incision and drainage (15.80%), and deroofing (9.20%), whereas wide excision (1.40%) was the least clinical practice among all dermatologists Figure 6.

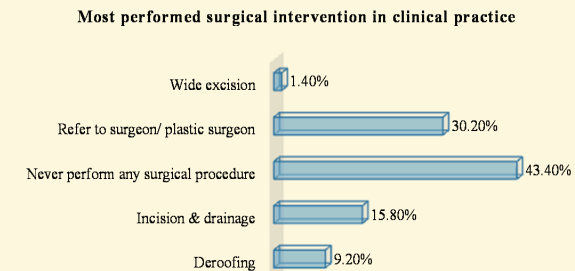


Figure 6: Surgical intervention in clinical practice

The study explored the challenges of HS treatment in Bangladesh. Most of the participants (76.30%) mentioned the nature of the disease (chronicity) as a challenge in treating HS; 34.2% narrated a lack of head-to-head comparative trials; 30.3% stated the high cost of treatment; 23.7% reported delayed diagnosis and those newer biologics are not available; and only 14.5% mentioned the side effects of treatments Figure 7.

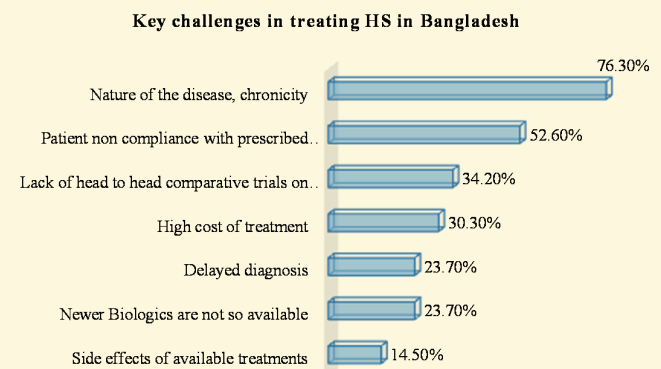


Figure 7: Challenges in treating Hidradenitis Suppurativa

Discussion:

Therapeutic approaches to HS are challenging due to the wide clinical manifestations of the disease, drug resistance, and complex pathogenesis.¹¹ Expert groups in North America, South America, and Europe have recently proposed a number of HS management guidelines that cover a wide range of therapy methods, including topical medications, systemic therapies, and surgical approaches. Treatment availability, cost, patient’s age,

co-morbidities, and severity of the disease all influence the decision of treatment choice.¹⁰

Considerable variation might exist in the current management of HS in our country. Hence, this study describes the current treatment pattern and challenges in HS management. Most of the dermatologists in the present study, 31 (40.8%), were both government and private practitioners; however, among them, 47 (61.8%) practicing in Dhaka, while no practitioner participated in the study from Barisal, the south-centred division, or Rangpur, Bangladesh.

Skin cleansers, keratolytic agents, and topical antibiotics are among the treatments used topically for HS.¹² Topical treatments are useful as a supplement to systemic treatments for moderate-to-severe disease and are particularly beneficial for mild or localized disease, especially in Hurley stages one and two.¹³ For many years, systemic antibiotics have been the cornerstone of treatment for HS; several regimens have been documented. Mild diseases may respond to monotherapy; tetracycline is the preferred first line of treatment and clindamycin + rifampicin is the second. Because of the higher recurrence rate and lesser response rates in late disease, their role is supplementary.¹²

When oral Tetracycline fails, the Clindamycin+Rifampicin combination works well as a second-line treatment for mild to moderate disease.¹³ or as a first-line or adjunct treatment for severe disease.¹²

The present study revealed that, in mild, moderate, and severe cases, topical + systemic antibiotics were the most frequently used treatment modality by the study participants, with Doxycycline (32%) and Clindamycin (31%) being the most preferred systemic antibiotics. In the USA, the most frequently prescribed treatments were oral antibiotic therapy (83.9%), topical antibiotic therapy (74.5%), intralesional Kenalog (63.1%), and biologic therapies (TNF- α inhibitors; 49%). Oral and topical antibiotics were the most commonly prescribed treatments in this cohort.¹⁴ Another study showed that both topical and systemic antibiotic therapies were the mainstay of care for HS patients.¹⁰

In an answer to a question about prescribing a combination of Clindamycin and Rifampicin for the treatment of Hidradenitis Suppurativa, almost 80% mentioned that they did not prescribe the combination therapy of Clindamycin and

Rifampicin. The reason behind not prescribing the Clindamycin+Rifampicin combination is that about 52% of participants said that injudicious use of Rifampicin might cause drug resistance as Bangladesh is a tuberculosis-endemic country and Rifampicin is a potential drug for an anti-TB regimen. Some others (46%) mentioned that the isolated Rifampicin formulation was not available in pharmacies. However, Brazilian guidelines recommend using rifampicin carefully as it is the first-line medication for the treatment of tuberculosis, which is common in the area and is becoming increasingly resistant to drugs¹⁵. Wayne Gulliver and colleagues considered clindamycin and rifampicin combination therapy for moderate-to-severe HS. Saunte et al. found that antibiotic treatment with combinations of clindamycin and rifampicin was effective.¹⁶

More research has been done in HS on the combination of clindamycin and rifampin than on most other antibiotics. A recent study revealed that using clindamycin and rifampicin for more than 10 weeks was safe.¹⁷ nevertheless, rifampicin resistance should be considered when thinking about extending therapy.¹⁸ For an 8–12-week therapy term, the recommended dosage is 300 mg twice daily of clindamycin combined with 300 mg twice daily of rifampicin or 600 mg once daily.¹⁸

The 300 mg formulation of rifampicin is not sold in commercial pharmacies or drug stores in Bangladesh. The 150 mg and 450 mg formulations have been introduced by very few pharmaceutical companies, but they are also not regularly available. Therefore, the patient must pick up Rifampicin from the National Tuberculosis Control Program's TB DOT (Direct Observe Treatment) corner.

In treating HS patients who are not responding to topical or oral antibiotics, acitretin is advised by all guidelines as a second or third line of treatment. Because of its greater response rates, acitretin is favoured over isotretinoin; nevertheless, women of childbearing age should not take acitretin, and if prescribed, they must utilize effective contraception.¹³ Even though acitretin is more effective than isotretinoin, isotretinoin is still preferred for female patients who are of childbearing age, according to the guidelines. In the present study, almost half of the dermatologists chose isotretinoin as their first choice as second-line therapy for moderate-to-severe HS treatment, while Acitretin and Dapsone were also

recommended.

Immunomodulation is quickly evolving into the mainstay of treatment for HS, ranging from moderate to severe. According to international standards, biologics should be taken into account for treating moderate-to-severe HS patients who are not responding to systemic conventional medication. The sole licensed biologic for HS is adalimumab, which is advised as the first-line biologic treatment in all guidelines. Infliximab is included as the suggested second-line treatment in most guidelines.¹⁹ Currently, patients with a moderate-to-severe degree of the disease are thought to be benefited most from biologic therapy.²⁰ When HS patients undergoing biologic therapy were compared to alternative treatments, Peterson GC et al. observed a greater overall response rate. How often do dermatologists in Bangladesh prescribe biologics in HS? Only 22% of dermatologists in our sample prescribed biologics for moderate-to-severe HS; among them, 14% stated that they did prescribe, but not frequently. 78% of dermatologists have never prescribed biologics for HS. In contrast to developed countries, biologics are not commonly prescribed here. The main problems are the scarcity of biologics, the cost of therapy, and the lack of qualified professionals using biologics in HS.

Surgical intervention, laser therapy, and light-based therapy are all part of the procedural management of HS. Except extensive local excision, deroofing, and carbon dioxide (CO₂) ablative laser treatment, which are mentioned as successful therapies in almost all guidelines, international recommendations for these modalities are a little erratic.¹³ To perform surgical treatments in HS, meticulous qualification is required. In the present study, in a question about performing surgical intervention, about 44% of participants mentioned that they had never performed any surgical procedure in clinical practice, and 30.20% referred the patients to a plastic surgeon. As surgical interventions, incision and drainage (I&D), deroofing, and wide excision were performed by 15.80%, 9.20%, and 1.40% of participants, respectively. In their daily clinical practice, a small number of dermatologists carried out surgical treatments alone; these primarily involved incision and drainage (I&D) and deroofing.

According to a study, surgical interventions connected to HS were comparatively rare

throughout the post-index decades, with incision and drainage being the most commonly reported procedures.²¹ A different study revealed that, with only 2.7% of patients obtaining surgery or surgical referrals,¹⁰ their providers also used surgical therapy at a significantly lower rate. More than half of the dermatologists questioned regarded experience with surgical therapies, training and education on surgical therapies, insurance coverage, and equipment availability as very major hurdles.²¹ The procedures that are necessary for dermatological training do not include surgical techniques for dermatologists treating HS, and no dermatology intern is exposed to these treatments throughout their residency training. Increasing the number of opportunities to acquire HS surgical skills both during and after residency can help address these barriers.²²

The present study identified dermatologists who reported key challenges in treating HS. The nature of the disease, chronicity was revealed by 76.30% of participants as a key challenge in treating HS, while 34.2% reported insufficient head-to-head comparative trials, 30.3% noted treatment high cost, delayed diagnosis, and that newer biologics are not available, as reported by 23.7% of the study population, and 14.5% narrated treatment side effects as the challenges for the treatment of HS.

Dermatologists found that the main obstacles to providing appropriate therapy for patients with HS were the high cost of treatments (53.3%), patient compliance with prescribed treatments (60.0%), and restricted health insurance coverage of accessible therapies (70.0%).²³ One of the main unmet needs for HS patients, according to the report, is the limited possibilities for therapy. The lack of randomized controlled trials makes it difficult to compare treatment outcomes between medicines. It is necessary to research novel therapy options because there are few effective treatments for HS. According to a study, HS-specific total healthcare costs made up 4–15% of all healthcare costs.²¹ For patients who were adults and adolescents alike, outpatient medical expenses accounted for a larger share of the financial burden. To improve health and lower medical costs, patients with HS may need comprehensive care methods involving a multidisciplinary team of specialists.

Conclusion:

It is expected that more research on the HS treatment pattern would improve the assessment of illness. Identifying and addressing barriers to achieving expertise in the treatment of HS can help provide access to high-quality care for patients with HS. Future research should incorporate benefit-risk ratio analysis and long-term evaluation of efficacy and safety to support appropriate medication and long-term evidence-based treatment.

Reference:

1. Fabian, O., Patrut, E. M., Muresan, F., Orasan, O. H., Cozma, A., Stetca, M., Vana, O., & Muntean, M. V. (2023). Hidradenitissuppurativa. A case report. *Annali Italiani Di Chirurgia*, 12(May).
2. Chandran NS, Lee JH, Kurokawa I. Hidradenitissuppurativa in South-East Asia and East Asia. *Exp Dermatol*. 2021;30 (Suppl. 1):23–26. <https://doi.org/10.1111/exd.14340>
3. Napolitano, M., Megna, M., Timoshchuk, E. A., Patruno, C., Balato, N., Fabbrocini, G., & Monfrecola, G. (2017). Hidradenitissuppurativa: From pathogenesis to diagnosis and treatment. *Clinical, Cosmetic and Investigational Dermatology*, 10, 105–115. <https://doi.org/10.2147/CCID.S111019>
4. Ahmad Kamil, M. A., & MohdAffandi, A. (2018). HidradenitisSuppurativa in Kuala Lumpur, Malaysia: A 7-Year Retrospective Review. *Dermatology Research and Practice*, 2018. <https://doi.org/10.1155/2018/2017959>
5. Ingram, J. R., Bettoli, V., Espy, J. I., Kokolakis, G., Martorell, A., Villani, A. P., Wallinger, H., Coak, E., Kasperek, T., Muscianisi, E., Richardson, C., & Kimball, A. B. (2022). Unmet clinical needs and burden of disease in hidradenitissuppurativa: real-world experience from EU5 and US. *Journal of the European Academy of Dermatology and Venereology*, 36(9), 1597–1605. <https://doi.org/10.1111/jdv.18163>. And
6. Nguyen, T. V., Damiani, G., Orenstein, L. A. V., Hamzavi, I., & Jemec, G. B. (2021). Hidradenitissuppurativa: an update on epidemiology, phenotypes, diagnosis, pathogenesis, comorbidities and quality of life. *Journal of the European Academy of Dermatology and Venereology*, 35(1), 50–61. <https://doi.org/10.1111/jdv.16677>
7. Garg, A., Malviya, N., Strunk, A., Wright, S., Alavi, A., Alhusayen, R., Alikhan, A., Daveluy, S. D., Delorme, I., Goldfarb, N., Gulliver, W., Hamzavi, I., Jaleel, T., Kimball, A. B., Kirby, J. S., Kirchhof, M. G., Lester, J., Lev-Tov, H., Lowes, M. A., ... Naik, H. B. (2022). Comorbidity screening in hidradenitissuppurativa: Evidence-based recommendations from the US and Canadian HidradenitisSuppurativa Foundations. *Journal of the American Academy of Dermatology*, 86(5), 1092–1101. <https://doi.org/10.1016/j.jaad.2021.01.059>
8. Reddy, S., Strunk, A., Jemec, G. B. E., & Garg, A. (2020). Incidence of Myocardial Infarction and Cerebrovascular Accident in Patients with HidradenitisSuppurativa. *JAMA Dermatology*, 156(1), 65–71. <https://doi.org/10.1001/jamadermatol.2019.3412>
9. Ingram, J. R. (2020). The epidemiology of hidradenitissuppurativa. *British Journal of Dermatology*, 183(6), 990–998. <https://doi.org/10.1111/bjd.19435>
10. Peterson GC, Preston A, Frieder J, Wang X, Paek SY (2020). Analysis of Characteristics and Trends in Treatment Response of HidradenitisSuppurativa Patients: A Southern US Cohort Study. *Dermatology*. 2020; 236(5):413-420. doi: 10.1159/000504843.
11. Amat-Samaranch, V., Agut-Busquet, E., Vilarrasa, E., & Puig, L. (2021). New perspectives on the treatment of hidradenitissuppurativa. In *Therapeutic Advances in Chronic Disease* (Vol. 12). <https://doi.org/10.1177/20406223211055920>
12. Alikhan A, Sayed C, Alavi A, Alhusayen R, Brassard A, Burkhart C, Crowell K, Eisen DB, Gottlieb AB, Hamzavi I, Hazen PG, Jaleel T, Kimball AB, Kirby J, Lowes MA, Micheletti R, Miller A, Naik HB, Orgill D, Poulin Y. North American clinical management guidelines for hidradenitissuppurativa: A publication from the United States and Canadian HidradenitisSuppurativa Foundations: Part II: Topical, intralesional, and systemic medical management. *J Am Acad Dermatol*. 2019 July; 81(1):91-101.
13. Hendricks AJ, Hsiao JL, Lowes MA, Shi VY. A Comparison of International Management Guidelines for HidradenitisSuppurativa. *Dermatology*. 2021;237(1):81-96. doi: 10.1159/000503605. Epub 2019 Oct 23. PMID: 31645040
14. Garg A, Geissbühler Y, Emma H, Choudhary N, Arora D, Vellanki V, Srivastava A, John Darcy P, Richardson C, Kimball A. B., (2023). Disease Burden and Treatment Patterns Among US Patients with Hidradenitis Suppurativa: A Retrospective Cohort Study. *American Journal of Clinical Dermatology* (2023) 24:977–990.

<https://doi.org/10.1007/s40257-023-00796-2>

15. Magalhães RF, Rivitti-Machado MC, Duarte GV, Souto R, Nunes DH, Chaves M, et al. Consensus on the treatment of hidradenitissuppurativa - Brazilian Society of Dermatology. *An Bras Dermatol*. 2019 Apr;94(2 Suppl 1):7–19.

16. Saunte DML, Jemec GBE. Hidradenitissuppurativa: Advances in diagnosis and treatment. *JAMA - Journal of the American Medical Association*. 2017;318(20):2019–2032.

<https://doi.org/10.1001/jama.2017.16691>

17. Albrecht J, Baine PA, Ladizinski B, Jemec GB, Bigby M. Long-term clinical safety of clindamycin and rifampicin combination for the treatment of hidradenitissuppurativa. *A Critically Appraised Topic*. *Br J Dermatol*. 2019 Apr;180(4):749–55

18. Hambly R, Kirby B. Prolonged clindamycin and rifampicin for hidradenitissuppurativa: resist to prevent resistance. *Br J Dermatol*. 2019 Apr;180(4):702–3.

19. Gulliver, W., Zouboulis, C. C., Prens, E., Jemec, G. B. E., & Tzellos, T. (2016). Evidence-based approach to the treatment of hidradenitissuppurativa/acne inversa, based on the European guidelines for hidradenitissuppurativa. *Reviews in Endocrine and Metabolic Disorders*, 17(3), 343–351. <https://doi.org/10.1007/s11154-016-9328-5>

20. Lipa K, Zajac N, Witkowski G, Ciechanowicz P, Wiszniewski K, Szymańska E, Walecka I. (2022). Hidradenitissuppurativa -biologic therapy and other available treatment options. *Postepy Dermatol Alergol*. 2023 Aug;40(4):518-528. doi: 10.5114/ada.2021.112075. Epub Jan 18. PMID: 37692279; PMCID: PMC10485753.

21. Garg A, Geissbühler Y, Emma H, Choudhary N, Arora D, Vellanki V, Srivastava A, John Darcy P, Richardson C, Kimbal A. B., (2023). Disease Burden and Treatment Patterns Among US Patients with Hidradenitis Suppurativa: A Retrospective Cohort Study. *American Journal of Clinical Dermatology* (2023) 24:977–990.

<https://doi.org/10.1007/s40257-023-00796-2>

22. Schukow C, Townsend C, Jess N, Daveluy S. (2023). Identifying Barriers to Developing Expertise in Hidradenitis Suppurativa. *J Clin Aesthet Dermatol*. Sep;16(9):38-40. PMID: 37720198; PMCID: PMC10503938.

23. A survey of dermatologist perspectives on disease management of patients with Hidradenitis suppurativa (2022). The American Academy of Dermatology, Inc. Published by Elsevier Inc. p p - 9 4 - 9 6 <http://creativecommons.org/licenses/by-nc-nd/4.0/>