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Acne Vulgaris Management: A Review of First-Line and Advanced Pharmacological Treatments

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ABSTRACT

Introduction and objective: Acne vulgaris is a common chronic inflammatory skin disease affecting hair and sebaceous follicles, characterized by skin lesions most commonly appearing on the face. Several factors predispose individuals to the development of acne, including hormonal imbalances, genetic predisposition, and the use of certain medications. This review aims to evaluate and summarize first-line and advanced pharmacological treatments for acne vulgaris, highlighting their efficacy, safety, and emerging therapies for optimal management.

Review methods: The literature review utilized databases covering sources from PubMed, Google Scholar, Scopus, and Web of Science using the search terms encompassing the following keywords: ‘acne vulgaris’ and ‘topical retinoid therapy’, ‘benzoyl peroxide’, ‘azelaic acid’, ‘topical antibiotics’, ‘oral antibiotics’, ‘contraceptive agents’, ‘antiandrogen therapy’, ‘isotretinoin’.

Brief description of the state of knowledge: Current treatment methods range from topical therapies (i.e. antibiotics and retinoids) for mild cases to systemic medications (i.e. antibiotics, retinoids, and hormonal) for moderate to severe acne. In most cases, treatment should start with topical therapy.

Summary: Early intervention is crucial to mitigate the risk of scarring and psychosocial consequences. Emerging therapeutic strategies have the potential to enhance treatment outcomes.

Keywords: acne vulgaris, topical retinoid therapy, systemic antibiotics, topical antibiotics, isotretinoin

INTRODUCTION

Acne vulgaris is a chronic inflammatory skin disease that primarily affects hair and sebaceous follicles [1]. Characteristic manifestations of this dermatosis include primary non-inflammatory lesions (comedones) and primary inflammatory lesions, such as papules, pustules, nodules, and cysts, along with secondary acne lesions. Acne eruptions most commonly appear on the forehead, nose, temples, and cheeks [2,3]. The disease affects both sexes equally, with severity ranging from moderate to severe, impacting over 80% of individuals between the ages of 11 and 30 [4].

The pathogenesis of acne vulgaris is primarily attributed to excessive sebum secretion, hyperproliferation of *Cutibacterium acnes*, hyperkeratinization of hair and sebaceous follicles, and inflammatory mechanisms [5]. Factors predisposing to acne development and influencing skin lesions include genetic components, hormonal imbalances, skin and gut microbiome compositions, mental stress, pollutants in inhaled air, skin care products, and certain medications [6].

Various therapeutic approaches are utilized based on the severity of lesions. Treatment should be multifaceted, encompassing not only pharmacological intervention but also patient education on appropriate diet and skincare practices [7]. Mild lesions often respond well to topical treatments [8]. Moderate to severe acne may require oral medications, such as antibiotics, isotretinoin, or hormonal therapies. Early and effective acne treatment is critical to prevent long-term complications, particularly scarring as well as psychosocial issues [9].

The objective of this review paper is to evaluate and summarize the current first-line and advanced pharmacological treatments for acne vulgaris, examining their mechanisms of action, efficacy, and safety profiles. Additionally, the review aims to provide insights into emerging therapies and guide clinical decision-making for optimal acne management.

REVIEW METHODS

The literature review utilized PubMed, Google Scholar, Scopus, and Web of Science databases, using search terms encompassing ‘acne vulgaris’ and ‘topical retinoid therapy’, ‘benzoyl peroxide’, ‘azelaic acid’, ‘topical antibiotics’, ‘oral antibiotics’, ‘contraceptive agents’, ‘antiandrogen therapy’, ‘isotretinoin’. The review included research articles, review papers, meta-analyses, and randomized controlled trials, prioritizing recent studies, with a total of 40 publications selected.

DISCUSSION

Mild Disease Management: Topical First-Line Treatments

Topical therapies serve as the cornerstone of acne management and can be utilized both for initial treatment and maintenance, either as monotherapy (excluding topical antibiotics) or in combination with other topical or systemic agents. Frequently employed topical treatments include retinoids, benzoyl peroxide, antibiotics, clascoterone, salicylic acid, and azelaic acid [10].

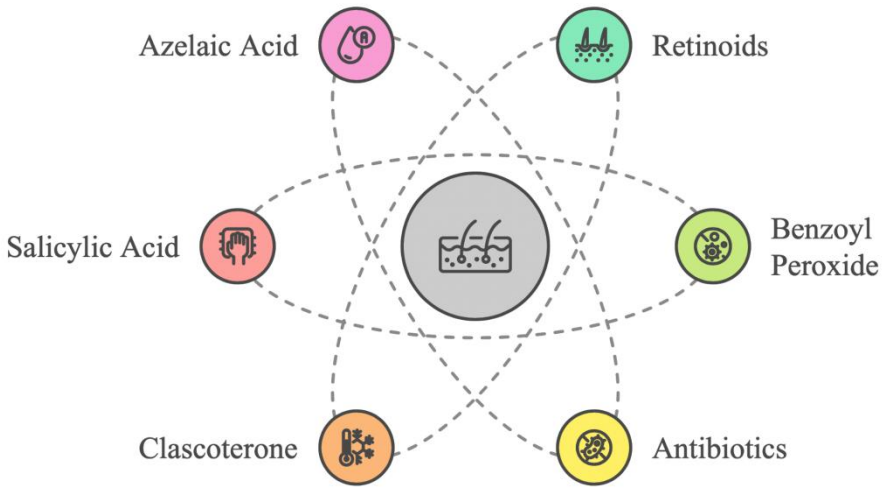

Fig. 1. Topical First-Line Treatments for Mild Acne Management.

Topical Retinoid Therapy

Topical retinoids, derived from vitamin A, are essential in treating acne vulgaris, benefiting both active treatment and maintenance phases by improving dyspigmentation and acne clearance [11]. The main retinoids - tretinoin, adapalene, tazarotene, and trifarotene - each interact with unique retinoic acid receptors, resulting in varying efficacy and tolerability [12]. Their effectiveness is due to strong comedolytic and anti-inflammatory properties, making them more suitable for use in multimodal regimens rather than as monotherapy. For mild acne, retinoids are often paired with benzoyl peroxide or topical antibiotics, while moderate-to-severe cases may require systemic therapies like antibiotics, hormonal agents, or isotretinoin [13].

Efficacy of Topical Antibiotics and Antibacterials for Acne Therapy

Topical antibiotics are important in managing inflammatory acne, especially when combined with other treatments. They work through antibacterial and anti-inflammatory effects, targeting *Cutibacterium acnes* and reducing related inflammation. However, due to concerns over antibiotic resistance, guidelines discourage their use as monotherapy [14].

The American Academy of Dermatology (AAD) recommends topical antibiotics like clindamycin, erythromycin, minocycline, and dapsone but highlights combining these with non-antibiotic agents, such as benzoyl peroxide or retinoids, to enhance effectiveness and curb resistance. Clindamycin with benzoyl peroxide is a first-line treatment, while clindamycin with tretinoin is moderately recommended [10].

Antibiotic resistance remains a key concern. Combining benzoyl peroxide with topical antibiotics helps reduce bacterial load, mitigating resistance. Additional strategies include limiting antibiotic use duration, avoiding concurrent oral and topical antibiotics, and reserving antibiotics solely for combination therapy. Topical antibiotics are generally indicated for inflammatory lesions and are beneficial for mixed lesion types. They are recommended alongside retinoids or benzoyl peroxide for milder cases and with systemic therapies, like hormonal treatments or isotretinoin, in severe cases [15].

In long-term management, retinoids are preferred, and benzoyl peroxide may be added for extra antibacterial effects. During pregnancy, topical antibiotics are safe when used cautiously to avoid prolonged use [10].

Topical Benzoyl Peroxide: A Key Agent in Acne Therapy

Benzoyl peroxide (BPO) is a key treatment in acne management due to its strong antibacterial, anti-inflammatory, and comedolytic effects. Recommended for acne of various severities, BPO is effective as monotherapy and even more so in combination with other treatments [10].

AAD endorses BPO across the acne spectrum, especially in multimodal regimens. It is commonly combined with retinoids or antibiotics for mild cases and with systemic therapies, such as oral antibiotics, hormonal agents, or isotretinoin, for more severe cases. Fixed-dose combination therapy is generally preferred over monotherapy, as it offers better control over both inflammatory and non-inflammatory lesions [16].

BPO works by reducing *Cutibacterium acnes* colonization without fostering bacterial resistance, making it essential for long-term management. European guidelines also

recommend BPO, particularly in combination with agents such as adapalene or clindamycin for mild-to-moderate papulopustular acne [12].

Available in 2.5% to 10% concentrations, BPO comes in creams, gels, and washes suitable for affected areas on the face, chest, and back. Lower concentrations (2.5% or 5%) are advised initially to reduce irritation risks, especially for sensitive skin. Common side effects include irritation, dryness, and peeling, which often lessen with continued use. To minimize irritation, options include nighttime application, lower concentrations, or washes with reduced contact time. Caution is recommended when using BPO with other agents, like certain retinoids, to avoid oxidative degradation, though adapalene remains stable in such combinations. Ongoing studies aim to refine BPO's optimal role in combination therapies to improve outcomes in both mild and severe acne [17].

Clinical Utility of Azelaic Acid in Acne Treatment

Topical azelaic acid has garnered recognition for its clinical utility in the management of acne, particularly in addressing post-inflammatory hyperpigmentation, inflammatory acne, and comedonal acne. ADD endorses azelaic acid as an adjunctive treatment option for acne management, based on moderate-certainty evidence. Its efficacy extends to alleviating post-inflammatory dyspigmentation, a common concern among individuals recovering from acne lesions [18].

European guidelines classify topical azelaic acid as a suitable treatment for mild-to-moderate papulopustular acne, designated with medium-strength recommendations. Additionally, it is acknowledged as a lower-strength alternative for managing comedonal acne. While the precise mechanisms underlying the action of azelaic acid remain incompletely elucidated, it is recognized for its keratolytic and antibacterial properties, contributing to its therapeutic effects in acne management [19].

Although generally well-tolerated, prolonged use of azelaic acid may lead to hypopigmentation, particularly in patients with darker skin tones. Other potential adverse effects include contact dermatitis, pruritus, burning sensations, tingling, erythema, dryness, peeling, and general irritation. However, it is considered safe for use during pregnancy, offering a viable treatment option for this population [17].

Clinical Applications of Topical Salicylic Acid in Acne Management

Topical salicylic acid is commonly used in acne management, though its overall effectiveness remains moderate, warranting careful clinical consideration. As both a comedolytic and keratolytic agent, salicylic acid helps remove dead skin cells and unclogs pores, reducing acne lesions. Available in creams, lotions, gels, foams, and washes, it typically ranges from 0.5% to 2% concentration, offering flexibility with wash-off and leave-on formulations to suit patient needs [20].

For optimal application, salicylic acid is usually started once daily, with possible increases to two or three times daily based on patient response. For children under 12, caution is advised to avoid salicylate toxicity by limiting the treatment area. While generally safe, salicylic acid may cause hypersensitivity, erythema, and scaling in some patients. Though salicylic acid is a useful addition to acne management, its limited evidence base suggests it works best when combined with other topical treatments, such as benzoyl peroxide [10].

Therapeutic Role of Topical Antiandrogens in Acne Vulgaris

Topical antiandrogens are increasingly recognized as effective adjuncts in treating acne vulgaris, especially for inflammatory and comedogenic types. Clascoterone, in particular, has gained attention for its unique action mechanism and positive efficacy profile [17].

AAD supports clascoterone 1% cream as an adjunctive therapy based on strong evidence. Approved by the FDA for individuals 12 years and older, it enables targeted treatment by directly applying it to affected areas. Generally well-tolerated, clascoterone may cause mild side effects in about 7% to 12% of users, most commonly erythema, pruritus, scaling, or dryness [21].

Hormonal Agents

Hormonal agents are important for managing moderate-to-severe acne, especially in female patients. These treatments include combined oral contraceptives (COCs) and antiandrogens, with spironolactone being a primary option. In cases of adrenal hyperandrogenism, low-dose oral corticosteroids may be indicated. These hormonal therapies reduce ovarian androgen production, decreasing sebum production, a key factor in acne [10,20].

Selecting the appropriate hormonal therapy requires assessing the androgenicity of the progestin component, with options ranging from first-generation, highly androgenic progestins to fourth-generation, antiandrogenic ones. When combined with estrogens, progestins yield an antiandrogenic effect through hepatic metabolism, differing from progestin-only contraceptives

[22]. These therapies are especially effective for patients with polycystic ovary syndrome (PCOS) but are contraindicated in males and pregnant women, with thromboembolic risks requiring careful consideration when prescribing COCs.

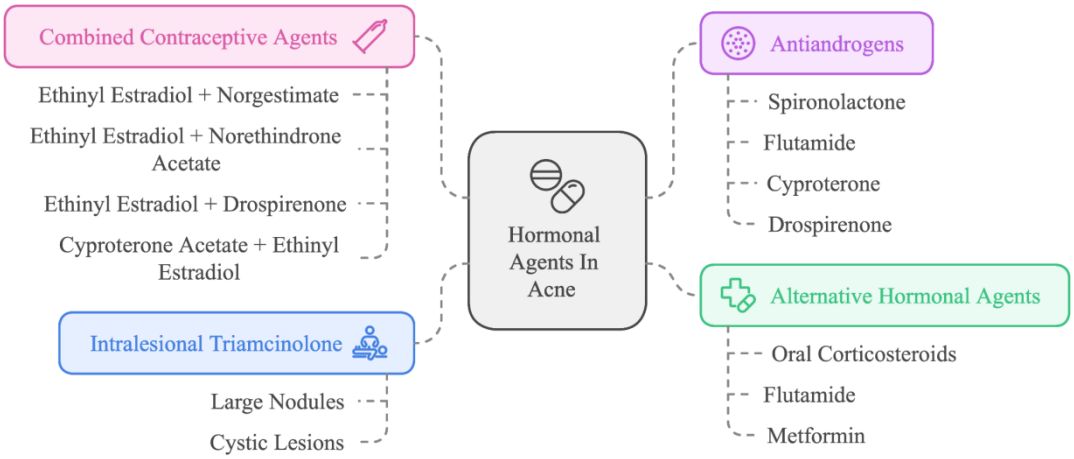

Fig. 2. Hormonal Agents in Acne Vulgaris.

Combined Contraceptive Agents (COCs)

COCs are a valuable option for managing moderate-to-severe acne, particularly in pubertal females. Common formulations include ethinyl estradiol combined with norgestimate, norethindrone acetate, drospirenone, or drospirenone with levomefolate calcium. In the UK, cyproterone acetate with ethinyl estradiol is sometimes used for severe acne that does not respond to antibiotics, though its higher venous thromboembolism (VTE) risk limits use, and therapy is typically stopped 3-4 months after acne resolution, with the option to restart if symptoms return [10,23].

COCs are often used as a second-line treatment for acne in females without endocrine issues and are recommended to start at least one year post-menarche to avoid impacts on skeletal maturation and bone density during adolescence [24]. Safety considerations are crucial with COCs, as they may increase the risk of venous thromboembolism, ischemic cerebrovascular events, and cardiovascular complications, especially for patients with risk factors like smoking or hypertension. Additional risks include slightly elevated breast and cervical cancer rates, though COCs offer benefits beyond acne management, reducing endometrial, ovarian, and colorectal cancer risks and improving menstrual regulation and hirsutism. While interactions between oral antibiotics and COCs remain uncertain, patients with hypertension, clotting disorders, or a history of venous thrombosis should avoid COCs [10].

Spironolactone's Role as an Aldosterone Receptor Antagonist and Other Antiandrogens in Acne

Antiandrogen therapy is a valuable approach in managing acne, especially through androgen receptor antagonism. Key antiandrogens include spironolactone, flutamide, cyproterone, and drospirenone, though their availability varies by region. These agents are generally contraindicated for males, due to feminizing effects, and for pregnant women, due to the risk of feminization of a male fetus [10,25].

Spironolactone is a leading antiandrogen for acne, effective as monotherapy with topical agents or as an adjunct to oral contraceptives in moderate-to-severe cases for female patients. Studies show significant improvement in mild-to-moderate acne after 24 weeks, with case data indicating partial to complete improvement in around 60% of treatment-resistant patients, supporting its role in challenging cases [26,27].

During spironolactone therapy, monitoring potassium levels is essential, especially for those with hyperkalemia risks like renal impairment or concurrent potassium-sparing medication use. Side effects may include renal dysfunction, gynecomastia, menstrual irregularities, breast tenderness, fatigue, headache, and dizziness [26].

Drospirenone, an FDA-approved antiandrogenic progestin, is available in combination oral contraceptives for acne. Cyproterone, approved in several countries but not in the US, and flutamide, an alternative with limited evidence, are also options. Selecting antiandrogen therapy requires assessing patient-specific factors, contraindications, monitoring needs, and regional availability, making it a tailored choice for moderate-to-severe acne cases unresponsive to standard treatments [10].

Intralesional Triamcinolone for Acne Treatment

Antiandrogen therapy is effective in acne management by targeting androgen receptors. Key agents include spironolactone, flutamide, cyproterone, and drospirenone, though their availability varies by region. These agents are generally contraindicated for males due to feminizing effects and for pregnant women because of fetal risks [10,25].

Spironolactone is especially effective as monotherapy with topical agents or alongside oral contraceptives for moderate-to-severe acne in females. Studies show significant improvement within 24 weeks, with around 60% of treatment-resistant patients experiencing partial to full improvement [26,27].

Potassium monitoring is essential during spironolactone treatment, particularly for those with hyperkalemia risks. Side effects may include renal dysfunction, gynecomastia, menstrual irregularities, and fatigue [26].

Drospirenone, FDA-approved for acne in combination oral contraceptives, and cyproterone (available outside the US) are additional options, while flutamide has limited supporting evidence. Selecting antiandrogen therapy requires individualized assessment of patient factors and monitoring needs, making it ideal for moderate-to-severe acne unresponsive to standard treatments [10].

Alternative Hormonal Agents in Acne Therapy: Evaluating Corticosteroids, Flutamide, and Metformin

The investigation of alternative hormonal agents for acne treatment, such as oral corticosteroids, flutamide, and metformin, reveals a complex landscape with limited conclusive evidence. Current data do not support definitive recommendations for their use. Oral corticosteroids, especially prednisone at doses of 0.5-1 mg/kg/day, have shown efficacy in severe cases like acne fulminans and in preventing isotretinoin-induced flares in high-risk patients. They may also be used temporarily for severe inflammatory acne or low-dose regimens for adrenal hyperandrogenism. However, significant long-term adverse effects limit their use as primary treatments [10].

Challenges in Treating Moderate to Severe Acne: Evaluating Antibiotic Resistance and the Role of Isotretinoin in Treatment Failures

Systemic oral treatments are advised when patients exhibit resistance to topical therapies or present with nodular lesions or scarring. These systemic therapies are critical not only for managing the physical manifestations of acne but also for mitigating associated social and psychological impacts. Among systemic options, oral antibiotics, hormonal agents, and isotretinoin are the most widely utilized in addressing acne vulgaris [28].

Oral antibiotics

AAD endorses oral antibiotics as a therapeutic standard for moderate to severe acne, a role they have maintained in dermatologic practice for over five decades [10]. Antibiotics are recognized for their efficacy in diminishing acne severity and are generally considered to have a favorable safety profile. However, in recent years, concerns over rising antibiotic resistance have intensified [29]. Evidence supports the efficacy of tetracycline, doxycycline, minocycline, trimethoprim/sulfamethoxazole (TMP/SMX), trimethoprim, erythromycin, azithromycin, amoxicillin, and cephalexin [10].

Tetracyclines

Tetracycline-class antibiotics function by inhibiting bacterial protein synthesis through binding to the 30S subunit of the ribosome. Additionally, this antibiotic class exhibits significant anti-inflammatory properties, including the inhibition of chemotaxis and suppression of metalloproteinase activity [10]. Tetracyclines for acne treatment mainly include tetracycline, doxycycline, and minocycline [30].

Tetracycline, one of the first oral antibiotics for acne treatment, was discovered in the 1940s and approved by the FDA in 1953; however, its adverse side effect profile, frequent dosing, and susceptibility to antibiotic resistance have diminished its use as a standard treatment. Chemically modified tetracycline derivatives have since been developed to provide additional therapeutic benefits [29]. Tetracycline resistance in *P. acnes* varies widely, from 2% to 30% for tetracycline and 2% to 44.2% for doxycycline, with notable differences across patient populations. Minocycline, however, maintains a low global resistance rate (<2%), making it the most effective tetracycline for acne treatment. Tetracycline resistance is linked to a G1058C mutation in the *P. acnes* 16S rRNA gene, while doxycycline resistance involves a substitution in the ribosomal S10 protein [30].

In the US, doxycycline and minocycline are regarded as first-line oral antibiotic therapies due to their affordability and accessibility. Doxycycline is generally preferred over minocycline, given the lack of evidence supporting minocycline's superior efficacy and concerns over its association with severe adverse skin reactions and drug-induced lupus [31].

Approved by the FDA in 2018, sarecycline is a narrow-spectrum antibiotic for moderate-to-severe acne with targeted action against *C. acnes* and minimal disruption to gut microbiota, reducing common side effects. Its long half-life enables once-daily dosing,

supporting compliance, though high costs and limited insurance coverage may limit broader accessibility [32].

Lymecycline is a semisynthetic, short-acting tetracycline whose use in acne treatment is well documented in the literature [33]. Treatment with lymecycline was found to be 4 times more cost-effective than with minocycline. Results of 12 weeks study on 136 patients showed that lymecycline has a comparable efficacy and safety profile to minocycline while being 4 times more cost-effective [34].

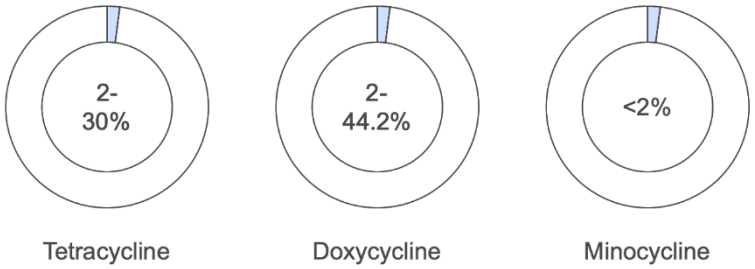

Fig. 3. Resistance Rates of Tetracycline-Class Antibiotics Against *P. acnes*.

Trimethoprim/sulfamethoxazole (TMP/SMX)

Trimethoprim/sulfamethoxazole (TMP/SMX), combines two antibiotics that work synergistically to block folate synthesis in bacteria. Although not specifically approved for acne treatment, it is often prescribed off-label for this purpose. Given its frequent use as the primary treatment for adults with community-acquired MRSA infections, careful use of TMP-SMX is advised to minimize the risk of developing antibiotic resistance [29].

Effect of macrolides and clindamycin

Macrolides also inhibit protein synthesis, although in a different way from tetracyclines - by binding the 50S subunit of the ribosome [29]. Erythromycin, clarithromycin, roxithromycin, and azithromycin are classified as macrolides, with azithromycin initially demonstrating efficacy in acne treatment akin to that of erythromycin. However, the substantial rise in antibiotic resistance has resulted in diminished efficacy of erythromycin, leading to azithromycin's predominant use in severe systemic infections, with its application in acne management generally restricted to select cases, such as patients who cannot tolerate tetracyclines [30].

Clindamycin is a highly effective antibiotic of the lincosamide class. Lincosamides are antibiotics with the same mechanism of action as macrolides (inhibition of the 50S subunit of ribosomes) and a similar range of activity. It has been widely used for decades to treat a range of skin and soft tissue infections in dermatology and medicine [35]. Erythromycin and clindamycin have been commonly employed for acne treatment over the past 40 years and continue to be frequently prescribed. However, prolonged use of these oral antibiotics has contributed to a rise in *P. acnes* strains resistant to macrolide antibiotics [30]. Recent studies indicate a growing prevalence of *P. acnes* resistance to macrolides and clindamycin across various major global regions. In certain countries, erythromycin resistance in *P. acnes* has exceeded 50%, while resistance to azithromycin ranges between 82% and 100% [36]. Azithromycin is distinguished by its favorable safety profile in pregnancy and lactation, with studies indicating placental transfer without teratogenic effects. Its prolonged half-life supports reduced dosing frequency to enhance adherence; however, co-administration with food diminishes its bioavailability [29].

Conclusion of the use of oral antibiotics in acne therapy

The NICE guideline recommends limiting oral antibiotic use for acne to 3-6 months, while other guidelines suggest a maximum of 3 months to mitigate antibiotic resistance. First-line options include lymecycline or doxycycline, with trimethoprim or oral macrolides as alternatives. Clinicians encounter difficulties in discontinuing antibiotics due to patient fears of acne recurrence. Monotherapy with oral or topical antibiotics is discouraged, as evidence indicates that benzoyl peroxide can significantly reduce antibiotic resistance risk. Continuing topical treatments as maintenance after oral antibiotic cessation is also advised to prevent acne relapse [37].

The Role of Isotretinoin - Indications for Isotretinoin

Isotretinoin, an oral retinoid initially marketed under the brand name Roaccutane, is prescribed for the treatment of severe acne. The indication approved by the Medicines and Healthcare products Regulatory Agency specifies isotretinoin for severe acne forms - such as nodular or conglobate acne, or cases at high risk of permanent scarring - that have proven resistant to sufficient courses of conventional systemic antibiotics and topical therapies [37].

Isotretinoin remains widely utilized as the sole acne treatment with proven long-term disease-modifying effects, despite an extensive range of potential adverse effects.

Current Advances in Isotretinoin Therapy

Recent studies have further detailed its side effect profile and the role of laboratory monitoring in managing isotretinoin therapy. Clinically significant lab abnormalities in isotretinoin patients are uncommon, yet a standard practice among dermatologists is to assess lipid and liver enzyme levels before treatment and at the two-month mark. In a cohort study, severe elevations in triglycerides and liver enzymes occurred in only 1% and 0.5% of patients, respectively, with laboratory monitoring rarely influencing clinical decisions, even among older patients or those with baseline abnormalities. Despite hypertriglyceridemia's association with pancreatitis risk, only four isotretinoin-related cases have been documented in 35 years, suggesting that routine laboratory monitoring may be unnecessary and supporting a streamlined protocol to reduce patient visits and healthcare costs [38].

Isotretinoin’s teratogenicity necessitates risk management measures, such as the iPLEDGE program in the US, which mandates the use of two contraceptive methods regardless of their efficacy. Revising iPLEDGE to account for the effectiveness of various contraceptives could enhance patient adherence to the program [38]. A recent modeling study found that highly effective contraceptive methods, such as subdermal implants and hormonal or non-hormonal IUDs, achieve over 99.5% efficacy in preventing pregnancy within the first 6 months, without needing a secondary method. Allowing patients to meet iPLEDGE requirements with a single, highly effective method, such as implants or IUDs, could reduce the need for multiple contraceptives and frequent pregnancy testing [39].

A retrospective analysis spanning the period from 1997 to 2017, derived from the FDA’s Adverse Event Reporting System and focused on psychiatric events associated with isotretinoin as the primary suspect drug, showed that among a total of 17,829 psychiatric adverse events, depressive disorders, emotional lability, and anxiety were reported most frequently. Depressive disorders and anxiety were reported similarly across sexes, with a marked gender difference in eating disorders. Although depressive and suicidal behaviors occur in isotretinoin users, suicide rates are lower than the general US population, suggesting potential overestimation of psychiatric risks. The findings highlight the importance of routine psychiatric screenings during iPLEDGE visits to ensure patient safety [40].

General principles and dosage recommendations

AAD supports isotretinoin use for severe acne in patients unresponsive to alternative treatments or experiencing psychosocial distress or scarring (AAD Good Practice Statement). Continuous daily dosing is recommended over intermittent dosing for severe acne (AAD Conditional recommendation, Low-certainty evidence). Both standard isotretinoin and lidose-isotretinoin (a micronized form not requiring food intake) are suitable options (AAD Conditional recommendation, high-certainty evidence) [10].

A target cumulative dose of 120-150 mg/kg is standard, although observational studies suggest that doses over 220 mg/kg may lower relapse risk. Dose-response studies demonstrate acne improvement across doses of 0.1, 0.5, and 1 mg/kg/day. Lower-dose isotretinoin (0.25-0.4 mg/kg/day) may reduce adverse effects, but evidence directly comparing low (<0.5 mg/kg/day) and standard doses (0.5-1 mg/kg/day) is limited, with some studies indicating similar efficacy and relapse rates for both regimens [10].

For moderate or papulopustular forms, a dosing range of 0.3-0.5 mg/kg/day is suggested, while a dose of ≥0.5 mg/kg/day is advised for severe nodular forms. Treatment should be sustained for a minimum of 6 months. Monitoring of liver enzymes and lipid levels is recommended before starting isotretinoin, at one month, and subsequently every three months [12].

SUMMARY

Acne vulgaris is a highly prevalent chronic dermatosis with a multifactorial etiology. Prompt and appropriate treatment can alleviate symptoms and prevent irreversible complications, particularly scarring. For most patients, first-line therapy involves topical treatments (retinoid therapy and antibiotics). However, in more severe cases, systemic therapy (antibiotics, retinoids, and hormonal) is warranted. Treatment should be individualized for each patient, taking into account the severity of skin lesions, the psychological impact, and the response to prior therapies. Currently available treatment methods with an indication of the novel therapeutic methods and latest treatment outcomes were discussed in this review.

Effective management requires close collaboration between the physician and the patient. Treatment is typically long-term (sometimes lasting several years) and necessitates regular medical follow-ups.

DISCLOSURE

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