An overview of treatment options for acne vulgaris

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Abstract

Acne vulgaris is a common skin condition with a high prevalence in teenagers and young adults. Numerous treatment options are available to manage acne. These include non-prescription and prescription medicines in a range of formulations. Generally, selection of the most appropriate treatment option depends on the severity of the acne. Pharmacists play an important role in recommending and initiating treatment for mild to moderate acne, and in providing advice and counselling with regard to more severe forms of acne.

Introduction

The South African Acne Treatment Guidelines document was published in 2005.¹ The main objective of these guidelines is to improve the outcomes of acne treatment in South Africa. They are based on recommendations of the Global Alliance for the Improvement of Outcomes in the Treatment of Acne Vulgaris. This comprises a group of recognised experts who analyse literature on acne and provide guidelines for its treatment. Countries review these in conjunction with considering the local environment and may accept or adapt the guidelines as appropriate.¹-³ Consensus guidelines on isotretinoin usage are published at intervals to provide practical information for healthcare workers.

As custodians of medicines, pharmacists need to be familiar with these guidelines, their recommendations on the approach to treating acne, and the available treatment options. This article will provide a brief overview of the main treatment options that are recommended in the management of all grades of acne, as outlined in the guidelines and the literature.

Treatment options for acne vulgaris

The main factors that are involved in the pathogenesis of acne include:

- Increased sebum production
- *Propionibacterium acnes* proliferation
- Androgen production
- Abnormal desquamation of the follicular epithelium
- Inflammatory and immunological responses

It is important to be aware of these factors, as they guide treatment selection. When treating acne, the approach is to target more than one of the abovementioned factors, so as to improve therapeutic outcomes.¹,⁴,⁵ Available treatment options for acne include topical retinoids, topical and systemic antimicrobial agents, hormonal agents, isotretinoin and other nonpharmacological options.¹,⁵,⁶

Rating the severity of the condition is important in the selection of the most appropriate treatment option. A simple grading system of mild, moderate or severe may be used, depending on the number, size and extent of the lesions. Other forms of grading are also available and can be used.

In addition to gentle and regular cleansing of the skin, azelaic acid, benzoyl peroxide, resorcinol and sulphur-containing topical preparations are considered to be safe and effective treatment options for mild superficial acne.⁶

Topical antimicrobial agents or topical retinoids are commonly used as first-line agents in the management of mild to moderate acne vulgaris. The more severe forms of acne warrant the use of oral isotretinoin, while hormonally driven (androgen-driven) acne warrants the use of antiandrogenic agents.

Benzoyl peroxide

Benzoyl peroxide has mild keratolytic and antimicrobial properties, which render it useful in the management of mild to moderate acne.⁷ It is recommended in the current Essential Medicines List and Standard Treatment Guidelines for South Africa as the first-line treatment for acne.⁸ The SA Acne Treatment Guidelines recommend its use either alone, in combination with topical retinoids, or in combination with systemic antibiotics.²

Azelaic acid

Azelaic acid is useful in the management of acne and in controlling the post-inflammatory pigment changes that often accompany...
Acne is a chronic inflammatory skin disorder that affects millions of people worldwide. It is characterized by the formation of comedones (pimples) and the progression of these into papules, pustules, and nodules. The primary causes of acne include excessive sebum production, blockage of hair follicles by sebum, and inflammation caused by bacteria. 

**Antibiotics**

Although antibiotics are commonly prescribed as a first-line treatment for acne, they are not effective for all types of acne. Antibiotics are usually prescribed for noninflammatory acne, such as comedones and papules. Commonly used antibiotics include tetracyclines, erythromycin, and clindamycin. However, the use of antibiotics should be limited to moderate to severe cases and brief duration of use. Guidelines recommend a minimum treatment duration of six weeks and a maximum of 12 weeks.

Topical antibiotic agents that are available on the market contain erythromycin and clindamycin. Generally, their use as monotherapy is discouraged, as this may lead to the development of resistance and therapeutic failure. Therapeutic failure may also be caused by poor adherence to recommended treatment regimens, inadequate prescribed potency (low dosage, leading to subtherapeutic doses) and folliculitis caused by other bacteria.

**Keratolytic agents**

Keratolytic agents, such as sulphur, resorcinol, and salicylic agents, are commonly used in combination preparations to treat mild cases of acne. They have mild antibacterial properties, as well as a desquamative action.

**Topical retinoids**

Topical retinoids are used as the first-line treatment in the management of noninflammatory acne and when benzoyl peroxide is ineffective. When applied topically, they cause a reduction in the number of comedones and inflammatory lesions. Tretinoin, isotretinoin, adapalene, and tazarotene are available on the local market. Retinoids are derivatives of vitamin A and share a common adverse effect: that of causing local irritation on application. However, adapalene is less likely to cause skin irritation and is reported to be better tolerated than the other topical retinoids.

The recommendation is that initially, topical retinoids should be applied at night to prevent or minimise irritation which may be exacerbated by exposure to sunlight. Concurrent use with keratolytic (peeling) agents should also be avoided, as this can increase skin irritation.

The use of topical retinoids should not pose a significant threat to pregnant women. However, as with most medicines, they should be avoided during pregnancy unless the benefits outweigh any potential risk to the foetus.

**Antibiotics**

Different classes of antibiotics are used for acne management, and these include tetracyclines, macrolides, and co-trimoxazole. These products are available as topical or systemic preparations.

Systemic antibiotics are the treatment of choice in cases of moderate to severe acne, especially acne that is resistant to topical treatment or which affects large parts of the body. These systemic antimicrobial agents act by reducing P. acnes within follicles, thereby inhibiting the production of bacterial inflammatory cytokines. P. acnes is a Gram-positive anaerobe that normally inhabits the skin and has been implicated in the inflammatory phase of acne.

However, one of the major limiting factors with the use of systemic antibiotics is the development of resistance. As a result, their use should be limited to moderate to severe cases and brief duration of use. Guidelines recommend a minimum treatment duration of six weeks and maximum of 12 weeks.

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**Hormonal treatment**

The main hormone that is responsible for increasing sebum production is dihydrotestosterone, which in turn is converted to testosterone in sebaceous glands by the enzyme, 5-alpha-reductase. Thus, hormonal treatment of acne focuses on reducing androgen levels. Antiandrogenic oral contraceptives and androgen receptor-blocking agents are treatment options in women with acne that is associated with androgen overactivity. These antiandrogenic products are combined with low-dose oestrogen.

**Systemic isotretinoin**

Isotretinoin is a naturally occurring metabolite of vitamin A. It acts by inhibiting sebaceous gland differentiation and proliferation, reducing sebaceous gland size, suppressing sebum production and normalising follicular epithelial desquamation. It is indicated for severe, grade IV nodular acne and acne that is unresponsive to other forms of therapy.

Although effective in the management of acne, the use of isotretinoin is often limited by its adverse effect profile. The most serious of these adverse effects is teratogenicity. The risk of teratogenicity is high and is independent of the dose used. It is thought to last up to one month after stopping the medicine, after which pregnancy may be considered.

Other adverse effects that are associated with the use of systemic isotretinoin include initial worsening of the acne, mucocutaneous side-effects such as chelitis and xerosis (abnormal dryness of the skin or mucous membranes), ocular dryness and psychiatric and hepatic disorders.

At the point of dispensing the medicine, time should be taken to properly counsel the patient on the use of the medicine and potential adverse effects of which the patient should be aware. Practical advice should be given on how to mitigate and manage these side-effects (Table I).

**Combination treatment**

Combining different products enhances their efficacy and may lead to faster onset of clinical improvement. Furthermore, combining products with different therapeutic actions, such as topical or systemic antibiotics with topical retinoids or benzoyl peroxide, also reduces the development of antibiotic resistance and limits the duration of antibiotic treatment.
Patients should be given detailed, clear instructions on how to use anti-acne medication.

This should include information on:
- The amount to take, use or apply.
- How long the medication should be used before changes in the skin condition are visible.
- The sequence of the healing process.
- Potential adverse effects that the individual is likely to experience.
- Benefits with regard to the patient’s quality of life.

References

9. Product information: Skinoren® Acne Cream or Gel.