

Acne Vulgaris

Prohibited Substances: Spironolactone, glucocorticoids

1. Introduction

Acne is one of the most common dermatological conditions, with the highest prevalence in adolescents and young adults, coinciding with the sporting population. Approximately 10% of acne occurs in those >25 years.¹ Adult acne may be classified as persistent, relapsing or late-onset acne. In contrast to adolescent acne, adult acne is more common in women.

Acne vulgaris is increasing globally, with a higher rate in developed countries. It is not clear whether there are differences based on ethnicity as there are many factors, including access to medical care.

Moderate to severe acne is associated with anxiety, diminished self-esteem, social isolation and depression.² While the disease is not directly life-threatening, suicidal ideation is 2-3 times more frequent in girls and boys with significant acne compared to those with no/little acne.³

Acne vulgaris is a disease that affects the pilosebaceous unit of the skin and often has an inflammatory component. These guidelines will not explore in any detail the pathophysiology and contributing factors.

Acne is usually treated in a stepwise fashion, with non-prescription treatments often initiated by patients, particularly for mild-moderate acne. Treatment may include salicylic acid, topical retinoids, benzoyl peroxide, plus topical antibiotics.⁴ For moderate to severe acne vulgaris, treatments could include oral isotretinoin, oral tetracyclines or combined estrogen-progestin oral contraceptives and spironolactone. There are many other adjunctive treatments, with varying degrees of efficacy. These include chemical peels, microdermabrasion, light therapy, etc.

Spironolactone is often used to treat women with moderate to severe acne.⁵ As well as being a weak diuretic, it functions as an androgen receptor blocker which reduces sebum production in acne prone follicles. Its anti-androgenic property is the reason that oral spironolactone is also used for the treatment of hirsutism in females, a condition that may be seen with polycystic ovarian syndrome (PCOS), as well as to suppress testosterone in non-orchietomized transwomen.

Topical spironolactone preparations, which are generally considered less effective than oral formulations, have a reduced systemic side effect profile and may be used to treat mild to moderate acne. Oral spironolactone is not used in males due to side effects (e.g. androgen suppression and gynaecomastia), but the topical preparation, with less systemic absorption, may be tolerated in males.⁸

Oral glucocorticoids (GCs) are not commonly part of an acne treatment plan but are occasionally used for their anti-inflammatory effect, e.g. when initiating isotretinoin treatment to minimize an acne flare. GCs may be injected intralesional in nodular acne. GCs are also used topically. Note that GCs are prohibited by oral or injectable routes but not prohibited when administered topically ([WADA Prohibited List](#)). The risks and benefits of the use of GCs will not be discussed further here.

2. Diagnosis

a. Medical history

A full medical history should include:

- i) Age of onset
- ii) Description and location of lesions
- iii) Prescribed medications, e.g., oral contraceptives, vitamin B12, testosterone, glucocorticoids
- iv) Other treatments related to the condition
- v) Related co-morbidities

b. Physical examination

Any of the following is indicative of moderate to severe acne:

- i) Widespread comedones, inflamed papules or pustules
- ii) Nodules (large papules) >5 mm diameter
- iii) Associated acne scarring

Accompanying images may assist the application.

c. Laboratory

The diagnosis is established clinically based mostly on the visual examination. No specific laboratory investigations are required to make the diagnosis of acne, but they may be helpful to assess underlying conditions. For example, for athletes with potential PCOS or androgenization features such as hirsutism may have an endocrine work-up.

3. Treatment

a. Name of prohibited substances

Spironolactone is included in the S5 class (Diuretics and Masking Agents) of WADA's Prohibited List. It is prohibited at all times, and by all routes.

Glucocorticoids are included in the S9 class of WADA's Prohibited List. They are prohibited in-competition by certain routes.

b. Route of administration

Spironolactone is usually administered as an oral medication for the treatment of moderate to severe acne. There are topical preparations which are less effective than oral and are occasionally used to treat mild to moderate acne. Topical preparations of spironolactone are also prohibited.

Glucocorticoids, when used to treat acne, are usually administered orally or by local injection. Topical GCs (rarely used) are not prohibited.

c. Dosage and frequency

Spironolactone

Oral: Initial treatment is 25-50 mg/day in 1-2 divided doses and may be titrated based on response and tolerability to 50-100 mg/day in 1-2 divided doses. The maximum dosage is 200 mg/day.⁶⁻⁷

Topical: A 5% cream may be applied twice daily and has some effectiveness for mild to moderate acne. It is sometimes used in males due to the limited systemic uptake and side effects.⁸

Glucocorticoids

Oral: There is no specific recommendation for the dosage and duration of GC administration, which may be given in conjunction with the initiation of isotretinoin treatment.

Intralesional injections: 1.25-2.5 mg/mL of triamcinolone. There is some evidence of its effectiveness although it is not without risk of adverse effects.⁹

4. Non-prohibited alternative treatments

These were discussed above. Spironolactone has a unique mode of action for the treatment of acne in women. GCs while much more rarely used, could be beneficial for very short-term use in specific situations.

5. Consequences to health if treatment is withheld

Inadequately treated acne may cause permanent scarring and disfigurement. Moderate to severe acne often has serious psychological effects, which may exacerbate or contribute to existing comorbidities. Although each situation must be dealt with on an individual basis, physicians should avoid delay if systemic medications are warranted.

The use of spironolactone often diminishes the need for antibiotics. Long-term use of antibiotics can cause more side effects and may contribute to global antibiotic resistance.

6. Treatment monitoring

There is no specific monitoring for anti-doping purposes although any treatment should require regular follow-up with a physician to monitor the disease, treatment and possible side effects.

7. TUE duration

The duration of the TUE should be for the period of the treatment. If the acne is well-controlled, the treatment may be 3-6 months. However, it would not be uncommon for the treatment of persistent or recurrent acne with spironolactone to be prolonged, particularly in adult women.

References

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