A acne in adult female patients carries a significant psychosocial burden and can be a challenge to treat. While many of the same medications used in the general population can be used in adult women, hormonal therapies are uniquely suited for these patients. Spironolactone is a potassium-sparing diuretic that has been used off-label to treat acne in adult women for decades. There is relatively little published data on the use of spironolactone, and this paper will review all available information including a recently published study that evaluated monitoring guidelines for spironolactone patients.

Adult female acne is defined by most key opinion leaders as acne that develops in women aged 25 or older. Acne may be either persistent since adolescence, new adult onset, or recurrent after a clear period. Hormonal factors play a key role in adult female acne. In one survey study of 173 adult women with acne, 83 percent had a menstrual flare, and 65 percent experienced a change in acne during pregnancy. In another study of 225 women, 62 percent reported perimenstrual exacerbation, and 10 percent of postmenopausal patients reported benefits from hormonal therapies.

HORMONAL THERAPIES

Hormonal therapies available in the United States include oral contraceptive pills and spironolactone. The use of a hormonal acne treatment may be considered when patients exhibit signs of hyperandrogenemia, such as hirsutism, when the patient has acne in a surgical mask distribution on the lower face and/or a history of perimenstrual flares, and when the patient’s acne does not respond to traditional therapies, has a recurrence after, or is nonresponsive to isotretinoin. Spironolactone may be an effective option even in women with contraindications to oral contraceptive pills, such as migraine with aura or history of deep venous thrombosis.

Spironolactone is an aldosterone antagonist and a potassium-sparing diuretic used to treat hypertension in high doses. It also acts as a competitive inhibitor to testosterone at the androgen receptor on the sebaceous gland, and results in a dose-dependent reduction in sebum excretion. It may also increase production of sex hormone binding globulin in the liver and help decrease free testosterone levels, though this effect has not been consistently demonstrated. Spironolactone has proven useful in treating not only acne, but also hirsutism and androgenic alopecia in women.

Spironolactone is typically dosed between 50 and 200mg in split doses. It is optimally absorbed in the presence of food, so it should be taken with a meal. A quarter of patients may experience a diuretic effect with increased urinary frequency. Especially at higher doses, patients may report breast tenderness (17 percent), menstrual irregularities (22 percent), or spotting (12 percent). Eleven percent of patients reported lightheadedness. Spironolactone contraindications include kidney failure and insufficiency, concurrent use of ACE-inhibitors, angiotensin receptor blockers, salt substitutes, and NSAID use. Patients should be counseled against ingesting large amounts of coconut water, which is rich in potassium. Spironolactone is labeled as pregnancy category C, and may feminize a male fetus. While oral contraceptive use is not mandatory, patients must be educated not to become pregnant while on the drug.

Spironolactone carries a boxed warning, which patients should be made aware of. In rat studies, spironolactone was shown to be associated with the development of solid organ tumors when given at high doses. In those studies, rats were exposed to 25- to 250-times greater amounts than humans receive when taking it at recommended doses. In long-term safety studies, no cases of breast or ovarian tumors have been reported.
Laboratory monitoring for patients on spironolactone comprises tests of renal function, complete blood counts, and electrolytes including potassium levels. In a recent study published in *JAMA Dermatology*, almost 1,000 adult women with acne and 1,200 women on spironolactone were evaluated. Out of 1,800 lab tests, there were only 13 abnormalities of potassium, half of which normalized when repeat testing was performed. The investigators discovered that the incidence of developing hyperkalemia in young, healthy women on spironolactone is equivalent to the baseline rate of hyperkalemia in the general population. They therefore concluded that regular potassium monitoring was not necessary in these acne patients.³

It is important to understand that while one study did not recommend regularly checking potassium levels, this is not an absolute guideline. Population-based studies do give overarching data, but do not account for potential outliers in clinical practice. While large numbers of patients are needed to compile data, we each interact with patients one-on-one in the office. Laboratory abnormalities are not common, however, they do occur, and we must be responsible to the individual patient we are treating. So rather than the absolute statement that laboratory monitoring is not necessary, perhaps a more appropriate message is that regular potassium checks are not always necessary, and best clinical judgment should be exercised for each individual patient.

**MAXIMIZE OUTCOMES**

Spironolactone is a highly effective therapy for adult female patients with acne, even when other traditional treatments have failed. Understanding how to properly prescribe, monitor, and educate your patients will maximize treatment outcomes and ensure their safety.

---


Joshua Zeichner, MD, FAAD is an Assistant Professor and Director of Cosmetic and Clinical Research in the Department of Dermatology at Mount Sinai Medical Center in New York.