

The Use of Sodium Sulfacetamide in Dermatology

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PRACTICE POINTS

- Sodium sulfacetamide is a useful agent in the management of papulopustular rosacea, acne vulgaris, seborrheic dermatitis, and perioral dermatitis.
- Adverse effects are rare and generally are limited to dryness, erythema, pruritus, and discomfort.

Sodium sulfacetamide is effective in the management of a variety of inflammatory facial dermatoses and often is used in combination with sulfur for a synergistic effect. Adverse effects from sodium sulfacetamide are rare and generally are limited to mild application-site reactions. This agent is contraindicated in any patient with known hypersensitivity to sulfonamides.

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Sodium sulfacetamide has various uses in the field of dermatology due to its anti-inflammatory and antibacterial properties. It has been shown to be effective in the management of a variety of inflammatory facial dermatoses, including papulopustular rosacea, acne vulgaris, seborrheic dermatitis, and perioral dermatitis. We review the mechanism of action, pharmacology and formulations, clinical uses, and adverse effects of sodium sulfacetamide as a dermatologic treatment.

Mechanism of Action

Sodium sulfacetamide is a sulfonamide-type antibacterial agent. Its mechanism of action is the inhibition of bacterial dihydropteroate

synthetase, which prevents the conversion of *p*-aminobenzoic acid to folic acid. This process causes a bacteriostatic effect on the growth of several gram-negative and gram-positive organisms, including *Propionibacterium acnes*.^{1,2}

The effectiveness of sodium sulfacetamide is increased when used in combination with sulfur, which has keratolytic, antibacterial, antifungal, and antiparasitic effects. The addition of hydrocortisone has been reported to increase the effectiveness of both agents.³

Pharmacology

Sodium sulfacetamide is highly soluble at the physiologic pH of 7.4, which contributes to its high level of penetration and absorption.⁴ An *in vitro* study showed percutaneous absorption of sodium sulfacetamide to be around 4%.⁵ Sulfonamides are metabolized mainly by the liver and are excreted by the kidneys.

Formulations

The most common concentrations of sodium sulfacetamide and sulfur are 10% and 5%, respectively. A wide variety of sulfacetamide-containing products are available, many of which are marketed to treat specific conditions depending on additional ingredients or the type of delivery system.

Clinical Uses

Topical formulations of sodium sulfacetamide and sulfur have proven to be efficacious in the management of rosacea, with a typical regimen consisting of

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twice-daily application for 8 weeks.⁶ The sulfur in the formulation has the additional benefit of targeting *Demodex* mites, which are implicated as a contributing factor in some cases of rosacea.⁷ Sodium sulfacetamide 10%–sulfur 5% lotion was more effective in improving the erythema, papulopustules, and overall severity of rosacea as compared to metronidazole gel 0.75%.⁸ Other studies have reported increased efficacy when sodium sulfacetamide and topical sulfur are used along with metronidazole.^{9,10}

Sodium sulfacetamide also has shown efficacy against acne. Its antibacterial and drying properties have been shown to decrease the number of inflammatory lesions and comedones, and in the treatment of acne vulgaris, no sensitivity reactions have been observed.² Also, unlike topical antibiotics, cases of *P acnes* resistance to topical sulfur products have not been widely reported. Studies have demonstrated that twice-daily use of sodium sulfacetamide 10%–sulfur 5% for 12 weeks decreases inflammatory acne lesions by 80.4% to 83%.^{11,12}

Seborrheic dermatitis is a common chronic infection of the skin caused by *Malassezia* species. One study investigated the use of sodium sulfacetamide ointment and soap to treat seborrheic dermatitis and found that the condition was either improved or completely controlled in 93% (71/76) of cases.⁴ Sodium sulfacetamide lotion was an effective treatment of seborrheic dermatitis in 89% (54/61) of patients with scalp involvement and 68% (30/44) of patients with glabrous skin involvement.¹³

Perioral dermatitis is characterized by groups of erythematous papules and pustules localized around the mouth. The use of topical sodium sulfacetamide along with oral tetracyclines has been demonstrated to consistently clear lesions in most patients with perioral dermatitis.¹⁴ Sodium sulfacetamide is unique in that it is not associated with the excessive erythema and irritation often found with retinoic acid and benzoyl peroxide.¹⁵ Unfortunately, however, there have been no well-controlled trials to compare the efficacy of sodium sulfacetamide to other topical therapies for this condition.

Adverse Effects

Adverse effects from sodium sulfacetamide are rare and generally are limited to cutaneous reactions including dryness, erythema, pruritus, and discomfort.¹ Periocular use of sodium sulfacetamide can cause conjunctival irritation. One study reported that 19% (6/31) of patients experienced local reactions but most were considered mild.⁹ Rare but serious reactions including erythema multiforme and Stevens-Johnson syndrome have been reported from ophthalmic use.^{16,17}

A common limiting factor to sodium sulfacetamide preparations that include elemental sulfur is the offensive smell, which has hindered patient compliance in the past; however, pharmaceutical companies have attempted to create more tolerable products without the odor.¹⁰ One study found that the tolerability of a sodium sulfacetamide 10%–sulfur 5% foam using a rinse-off method of application was excellent, with only 33% (8/24) of participants commenting on the smell.¹⁸ Another limiting factor of sodium sulfacetamide preparations containing sulfur is orange-brown discoloration when combined with benzoyl peroxide, which does not affect the skin but may stain clothing.¹⁹

Sodium sulfacetamide is rendered less effective when combined with silver-containing products.²⁰ No other notable drug interactions are known; however, oral sulfonamides are known to interact with several drugs, including cyclosporine and phenytoin.^{21,22}

Contraindications

Sodium sulfacetamide is contraindicated in patients with known hypersensitivity to sulfonamides, sulfur, or any other component of the preparation. It is a pregnancy category C drug, and pregnant women should only use sodium sulfacetamide if it is the only modality to treat the condition or the benefits outweigh the risks. Although there are no known reports of problems related to topical sodium sulfacetamide during pregnancy, the use of oral sulfonamides during pregnancy can increase the risk for neonatal jaundice.²³ Likewise, caution should be exercised in prescribing this product to nursing women, as systemic sulfonamide antibacterials are well known to cause kernicterus in nursing neonates.¹

Conclusion

The efficacy and safety of sodium sulfacetamide, used alone or in combination with sulfur, has been demonstrated in the treatment of rosacea, acne, seborrheic dermatitis, and perioral dermatitis. Advances in formulation technology to decrease odor and irritation have allowed for more use of this product. Further studies will help elucidate the role that sodium sulfacetamide should play in the treatment of inflammatory dermatoses in comparison to other available products.

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