

## Topical timolol for postacne erythema



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### THERAPEUTIC CHALLENGE

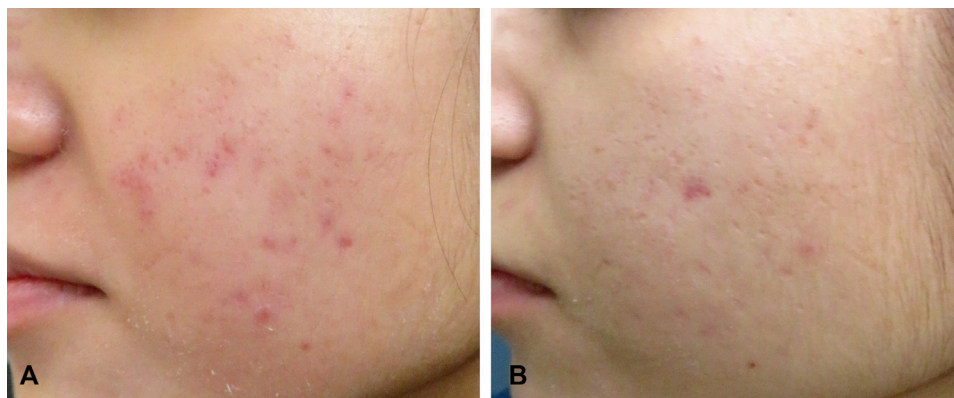
Postacne erythema and hyperpigmentation are common sequelae of inflammatory acne. The combination causes significant psychological distress to the patient and is a therapeutically challenging problem for treating dermatologists. Lasers and microneedling radiofrequency devices are currently used in the treatment of postinflammatory erythema of acne. Readily available medical treatment has not yet been established.

### SOLUTION

Vasodilatation and melanogenesis lead to postacne erythema and hyperpigmentation, respectively. Neoangiogenesis and the cascade of inflammatory events that follows acne result in persistent erythema and scarring.<sup>1</sup> Timolol is used in the treatment of infantile hemangioma because of its ability to induce vasoconstriction and inhibit neoangiogenesis.

We used topical timolol in an acne patient with significant postinflammatory erythema and atrophic scars (Fig 1, A). She was advised to apply topical timolol maleate 0.5% ophthalmic solution (available as a topical gel formulation in the United States) on postinflammatory erythema sites at bedtime. For breakthrough acne, we allowed her to apply topical clindamycin gel. Postinflammatory erythema was documented on dermoscopy. After 12 weeks, she had significant improvement in her postinflammatory erythema, which left only shallow rolling scars without any pigmentation (Fig 1, B). Dermoscopy demonstrated improvement in erythema and pigmentation (Fig 2, A and B). No local or systemic adverse effects were observed.

One drop (0.05 mL) of 0.5% timolol solution contains 0.25 mg of timolol; and the maximum recommended dose of topical timolol is less than 0.2 mg/kg/day.<sup>2</sup> Systemic adverse effects such as bradycardia, hypotension,



**Fig 1.** Clinical improvement in postacne erythema with timolol. **A**, Baseline image showing significant postacne erythema. **B**, Improvement in postacne erythema after 3 months of bedtime topical timolol maleate 0.5% application. Erythema of breakthrough acne can be observed.

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Funding sources: None.

Conflicts of interest: None disclosed.

Reprints not available from the authors.

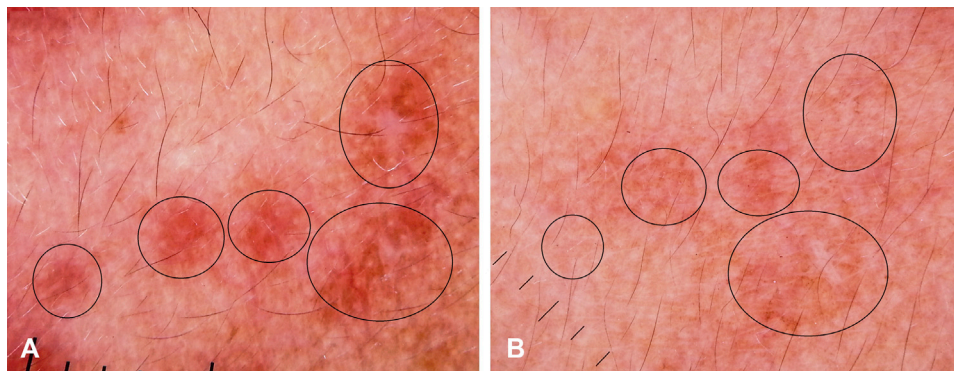
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J Am Acad Dermatol 2021;84:e255-6.

0190-9622/\$36.00

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<https://doi.org/10.1016/j.jaad.2020.04.144>



**Fig 2.** Improvement of erythema and pigmentation on dermoscopic evaluation. **A**, Erythema and pigmentation at baseline visit. **B**, Improvement in erythema and pigmentation after 3 months of bedtime topical timolol maleate 0.5% application. (Dermlite DL4, 3Gen, San Juan Capistrano, CA. Image captured by OnePlus A6000 smartphone [OnePlus Technology, Shenzhen, Guangdong, PRC].)

apnea, and hypothermia have been observed only in preterm infants.<sup>2</sup> Limited spot application of timolol on postinflammatory erythema (usually restricted to the cheeks and temples) may not cause significant systemic adverse effects.<sup>3</sup>

#### REFERENCES

1. Fabbrocini G, Annunziata MC, D'Arco V, et al. Acne scars: pathogenesis, classification and treatment. *Dermatol Res Pract*. 2010;2010: 893080.
2. Frommelt P, Juern A, Siegel D, et al. Adverse events in young and preterm infants receiving topical timolol for infantile hemangioma. *Pediatr Dermatol*. 2016;33:405-414.
3. Borok J, Gangar P, Admani S, et al. Safety and efficacy of topical timolol treatment of infantile haemangioma: a prospective trial. *Br J Dermatol*. 2018;178:e51-e52.