



ACADEMIA ESPAÑOLA  
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## RESIDENT'S FORUM

### [Translated article] RF – Topical Timolol in Dermatology

### FR – Usos de timolol tópico en Dermatología

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#### KEYWORDS

Timolol maleate;  
Capillary hemangioma;  
Eczema;  
Wound healing;  
Acne vulgaris;  
Pyogenic granuloma

#### PALABRAS CLAVE

Maleato de timolol;  
Hemangioma capilar;  
Eccema;  
Cicatrización de heridas;  
Acné vulgar;  
Granuloma piogénico

Topical  $\beta$ -adrenergic antagonists such as timolol maleate have been used off-label for some years now in the treatment of small, superficial infantile hemangioma. However, a recent phase 2a randomized controlled trial found that

timolol maleate was not superior to placebo with respect to the number of infantile hemangiomas cured during the early proliferative phase. According to the authors, these results could be due to an insufficient sample size and a greater number of losses than initially calculated. Therefore, larger-scale clinical trials are necessary to show the superiority of timolol maleate in this indication.<sup>1</sup>

Possible dermatologic indications have recently been proposed for timolol maleate, with a low-quality grade of evidence.

Pawar<sup>2</sup> reported using timolol maleate 0.5% to treat recalcitrant fissures and erosions in chronic hand eczema and proposed applying 2–3 drops on each lesion before bedtime and observing healing after 1 week of therapy. The author postulated that the mechanism by which the  $\beta_2$  antagonists accelerated recovery of the skin barrier could be associated with migration of keratinocytes and re-epithelization of the affected area.

This pathway has also shown the usefulness of timolol maleate in the healing of venous ulcerated chronic lesions, and even in patients with junctional epidermolysis bullosa, when applied at the abovementioned dose, albeit for a longer period (8 weeks).<sup>3</sup>

Patients with inflammatory acne may have residual hyperpigmentation and erythema as sequelae. Afra et al.<sup>4</sup> report the case of a patient in whom these sequelae were treated effectively with timolol maleate 0.5% for 12 weeks. The clinical and dermoscopic improvement observed seems

DOI of original article:

<https://doi.org/10.1016/j.ad.2021.09.014>

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<https://doi.org/10.1016/j.ad.2021.09.016>

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to be due to the drug's vasoconstrictive and angiogenesis-inhibiting properties.

Pyogenic granulomas are rapidly growing benign vascular tumors. Timolol maleate can help to reduce the size of and bleeding in these lesions before surgery, as well as the size of the postsurgical scar.<sup>5</sup>

The adverse effects of topical  $\beta$ -adrenergic antagonists are very uncommon. Timolol maleate should be used with caution in low-birth-weight infants and infantile hemangioma thicker than 3 mm in the diaper area or close to the mucosal membranes, since there have been reports of bradycardia, hypotension, apnea, and hypothermia in preterm infants.<sup>1</sup> The dose should not exceed 0.2 mg/kg/d (1 drop [0.05 mL] of timolol 0.5% solution contains 0.25 mg of timolol).<sup>4</sup> Owing to the drug's mechanism of action, it should be used with caution in patients with underlying cardiopulmonary diseases<sup>2</sup> and over small areas of skin.<sup>3</sup>

## Funding

The authors declare that no funding was received for the present study.

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