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RESIDENT'S FORUM

RF-Topical Rapamycin as an Adjuvant to Laser Treatment in Capillary Malformations☆

FR- Rapamicina tópica adyuvante al tratamiento con láser en malformaciones capilares

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To date, the gold-standard treatment for capillary malformations (CM) is pulsed dye laser (PDL). The lightening achieved is, however, incomplete and persistence or redarkening of the malformation appears to be the norm.

Revascularization of the lesions after laser treatment appears to be the reason for the varying efficacy of PDL in CM. Different topical antiangiogenic molecules have been tried in an attempt to halt this revascularization. Of these molecules, the most widely studied is rapamycin (RPM), for which studies of different kinds and with different results are available.

The antiangiogenic action of RPM works by inhibiting its specific target (mTOR). This action is conditioned by a reduction of vascular endothelial growth factor (VEGF) and other proangiogenic signals. RPM is known in dermatology for its considerable efficacy, when applied topically, in managing facial angiofibromas characteristic of tuberous sclerosis.[1]

Experiments with mouse models have shown strong induction of proangiogenic genes between 3 and 7 days after exposure in conjunction with PDL. Application of 1% topical RPM appears to systematically reverse this induction.[2,3]

Initial trials in healthy human skin with histologic monitoring showed that the combination of topical RPM once daily for 14 days, following the PDL session, inhibited normal vascular repair in the superficial and middle dermis, measured using immunohistochemical markers (CD31).[2]

The first randomized, double-blind, intraindividual placebo-controlled clinical trial was carried out by a Spanish multicenter group. Twenty-three patients were enrolled in this trial. The combination of PDL (2 sessions) and 1% topical RPM (once daily for 12 weeks) showed greater clearance than the other combinations (PDL alone, topical placebo alone, and PDL with placebo). A limitation of that study is that PDL was only applied to the sides of the face, which are areas that generally respond better to PDL.[4]

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In more recent placebo-controlled trials, however, the combination of PDL and RPM has shown no greater efficacy of statistical significance than PDL alone.[5,6] One of these studies included 13 patients with nonfacial CM and the other study included 6 such patients.

In terms of the safety profile, only 1 case of allergic contact dermatitis has been reported in association with the use of RPM as an adjuvant to PDL.[7] No cases of systemic toxicity have been reported.

In light of the available evidence, the use of RPM as an adjuvant to PDL in CM appears to have a solid foundation supported by quality research. Nevertheless, its real efficacy and optimum recommended dosage and formulation have yet to be determined.

Another factor to be taken into account is the fact that RPM is not yet available for sale in Spain, which means that its use would be off-label. Furthermore, its formulation is expensive for patients and complicated for pharmacists.

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