

Cosmetic & Pharmaceutical Research > Cosmetic & Pharmaceutical Research > Laser Treatment



Topical anaesthetic effects on skin vasculature with potential implications for laser treatment.

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ABSTRACT

Laser treatment of vascular lesions is affected by parameters including the diameter and depth of the vessels and flow within the vessels. Topical anaesthetics are in common use prior to laser treatment but may have effects on vessel parameters and, subsequently, the efficacy of laser treatment. Eleven patients with capillary vascular malformations were investigated for vessel diameter before and after elective application of a topical anaesthetic, Eutectic Mixture of Local Anaesthetics (EMLA) (AstraZeneca) or Ametop (S&N Health), prior to pulsed dye laser treatment. EMLA contains 2.5% lidocaine ad 2.5% prilocaine, and Ametop gel contains 4% tetracaine. Patients' capillary malformations were assessed using confocal laser scanning microscopy (CLSM) (Vivascope 1500 Mavig GmbH, Munich). Six of the 11 patients recruited had EMLA topical anaesthetic, and five had Ametop. Four hundred twenty-one diameters were measured. The mean vessel diameter was 50.87 ?m. Previous laser treatments undergone by each patient were noted to exclude this as a confounding variable, and no significant difference was found between topical anaesthetic groups. Statistical calculations were made using GenStat and Minitab. There is no evidence that Ametop affects mean diameter (p value is 0.361). EMLA reduces the mean diameter of vessels (p?=?0.002), with a 27% reduction in post-EMLA diameter. This study demonstrates that the use of EMLA cream has a statistically significant reduction vessel diameter. As it is known that vessel diameter is important for the response of laser treatment, the use of EMLA may affect outcome. KEYWORDS: Ametop; Capillary malformations; Confocal microscopy; EMLA; Laser treatment; Topical anaesthetics PMID:26861976 DOI:10.1007/s10103-016-1872-4