Percutaneous anaesthesia with a lignocaine-prilocaine cream (Emla) for eyelid skin surgery

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Abstract
Epicutaneous application of the anaesthetic cream Emla (lignocaine and prilocaine), to induce percutaneous anaesthesia in 38 patients scheduled for eyelid skin surgery is presented. The cream was applied 60 to 90 minutes before operation. In 36 out of the 38 patients (94.8%) no supplementary analgesia was required. The pain during the procedure was rated either as no pain in 29 patients (76.3%), slight pain in five patients (13%), moderate pain in two patients (5-2%), and severe pain in two patients (5-2%). Percutaneous anaesthesia induced by Emla cream is a useful and painless alternative method for analgesia in eyelid skin surgery.

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Percutaneous anaesthesia may be achieved by the infiltration of several local anaesthetics. The disadvantage of this procedure is that the subcutaneous injection of a local anaesthetic may produce pain by penetration of the needle and injection of the solution. Moreover, swelling of the skin, resulting after any infiltration influences the anatomical relations of the area and the definition of the surgical margin becomes more difficult.

Emla 5% cream (eutectic mixture of local anaesthetics; Astra Pharmaceuticals, Sweden) consists of 25 mg/ml (107 mmol/litre) lignocaine base and a 25 mg/ml (113 mmol/litre) prilocaine base with a thickener (Carbopol 934) added to obtain suitable consistency. The formulation of the cream allows a high concentration of active substance (80%) compared with previous formulations (20%). This high concentration of anaesthetic agent in the emulsion phase allows good penetration and satisfactory concentration in the superficial tissues. Initially this cream was used to alleviate the pain of venepuncture, especially in children, cutting split skin grafts, and for ophthalmic purposes to minimise the pain of retrobulbar injection.

This paper describes our experience with this product in eyelid skin surgical procedures which to our knowledge has not been cited in the literature.

Patients and method
Thirty eight patients, 27 women and 11 men, aged 35-72 years, were scheduled for eyelid skin surgery. Informed consent was obtained from all patients. The reasons for eyelid skin surgery were dermatochalasis in 11 cases, xanthelasma in 21 cases, and other skin lesions in six cases.

Sixty to 90 minutes before surgery a thick layer of Emla cream was applied to the eyelids area. The cream was then covered with a plastic wrap (Tegaderm 3M) occlusive dressing. Great care was taken to prevent the anaesthetic cream getting on to the eye causing corneal irritation. To do this, before applying the cream, plastic wrap was taped first at the site of the eyelashes and a few drops of proxymetacaine hydrochloride 0.5% (Alcaine) were instilled into the conjunctival sac. After applying Emla cream, the patient was free to blink the eyelids as desired and was not obliged to keep the eyes closed.

In the cases of dermatochalasis the procedure was performed at the same time in both left and right upper eyelids. However, in cases of xanthelasma situated in both the upper and the lower eyelid a simultaneous surgical procedure in both eyelids of the same eye was avoided because of the increased probability of the anaesthetic cream getting onto the eye. In other skin lesions there should be a limit of at least 2 mm between the lesion and the eyelid margin, thus affording enough area for taping the plastic wrap.

The dose of Emla used in the study was a thick layer of cream. In a previous trial, a dose of 15 g Emla per 100 cm² was found to be sufficient for the cutting of split skin grafts.

None of the patients was premedicated with a sedative, and after a minimum of 1 hour, the occlusive dressing was removed and the cream wiped off with a dry swab. The eyelid skin was examined for a local reaction such as oedema, redness, or paleness, which was recorded by the surgeon. The area was then disinfected with 0.5% chlorhexidine gluconate in 70% alcohol. Before operation the patient was asked about any discomfort, particularly smarting pain or itching caused by the cream. The patients were asked to rate the pain they had experienced during the operation on a four point scale as none, slight, moderate, or severe.

Results
All surgical procedures were performed without the need of additional analgesia in 36 out of 38 patients (94.8%). Thirty four out of 38 patients reported either no pain (29 patients 76.3%) or slight pain (five patients 13-1%) during the procedure; two (5-2%) reported moderate pain; and another two (5-2%) severe, intolerable pain. In these patients supplementary analgesia by infiltration of a local anaesthetic (lignocaine 2%) was given. The results of our study show that the analgesic effect of this method were excellent in 29 cases (76-3%); in seven cases (18-4%) they were satisfactory; and in two (5-2%) the patients reported severe intolerable pain although the application time was within the protocol limits.

No significant difference in analgesic effect as
to age or sex was found. No patient reported any reaction such as itching or burning. No oedema, scaling, or other severe reaction was observed, caused by local application of the anaesthetic cream. However, in two cases slight paleness of the skin was seen after removal of the anaesthetic cream.

Although great care was taken during the application of the anaesthetic cream and the adjustment of the plastic wrap a small amount of Emla leaked on to the eye in four cases. These patients developed a slight degree of congestion of the conjunctiva without any corneal epithelium erosion.

Discussion
The delayed onset of analgesia using the Emla cream as a local anaesthetic can be predicted but as the great majority of surgical procedures on the skin of the eyelid aim at cosmetic rehabilitation, and not at the management of a serious eye disease, an operative intervention which is as painless as possible constitutes an advantage as to the surgical approach. On the other hand, avoiding infiltration of the subcutaneous tissue with some kind of topical anaesthetic results in the preservation of the anatomical affinity of the area. This allows a better definition as to the limits of the surgical procedure. Moreover, by applying this method, even in those rare cases in which analgesia might be insufficient, the already partly anaesthetised area offer the advantage of a less painful supplementary topical anaesthesia.

Finally, we conclude that percutaneous anaesthesia with Emla cream according to our results is an effective alternative method of providing analgesia in eyelid skin surgery.