Comparison of pain reduction between lidocaine-prilocaine cream and diclofenac gel in patients treated with the alexandrite laser

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Dear editor,

Laser– assisted permanent hair removal is commonly performed for the treatment of unwanted hair. This procedure is usually associated with pain [1] and pain reduction has an important role in the success of this treatment. A common method of reducing pain is to use topical analgesics [2]. A mixture of lidocaine and prilocaine (EMLA) is a commonly used and very effective topical anesthetic. Another agent is diclofenac gel. Diclofenac is a non-steroidal anti-inflammatory drug (NSAID) and is a potent inhibitor of inducible cyclo-oxygenase (COX-2) [3]. Oral administration of this medication can result in adverse effects. There are no studies on its efficacy as a topical anesthetic in laser hair removal.

In this double- blind, clinical study, we compared the efficacy of lidocaine –prilocaine cream and diclofenac gel in pain control in patients treated with the Alexandrite laser. This study was conducted in January and February 2011 at Nasr-Razi Laser Center of Urmia after institutional review board and ethics committee approval was obtained. Patients with hirsutism who were referred to this institute were enrolled in the study. Individuals with allergy to NSAIDs or local anesthetics, long-term use of NSAIDs and pregnant patients were excluded. At the first visit, treatment was performed using only long-pulsed 755-nm Alexandrite laser with its standard cooling device without the use of topical anesthetics. To evaluate the pain, we used Pain Numeric Rating Scale (NRS) and asked patients to grade the severity of their pain from 1 to 10 (1 = no pain, 10 = worst pain).

At the second visit, the laser therapy zone was divided into two areas by a laser technician; then, diclofenac gel was applied to one area and lidocaine –prilocaine cream was applied to the other area and covered with a thin plastic bandage. After 60 minutes, the technician cleaned the skin with gauze. Neither the doctor nor the patients knew which drug was applied to which side. The amount and intensity of radiation at the second visit were the same as the first visit when the cooling device was used. The patients were interviewed by a doctor and asked to determine the pain score from 1 to 10 for each area (Figure 1). Data were collected and analyzed with SPSS version 16 using paired t-tests to compare the scores for each topical anesthetic. A P- value less than 0.05 was considered significant. As a result, a total of 32 women aged between 19 and 42 years with hirsutism were enrolled in the study. Mean scores for the cooling device only, diclofenac gel and lidocaine-prilocaine cream were 10, 8.09 and 5.46, respectively. The score for the cooling method was statistically higher than those for the topical anesthetics (P-value: 0.01) and there was a significant difference in pain reduction between diclofenac gel and lidocaine –prilocaine cream (P-value: 0.01).

The use of topical anesthetics is a simple and effective way of reducing patient discomfort during laser hair removal procedures. One of these topical

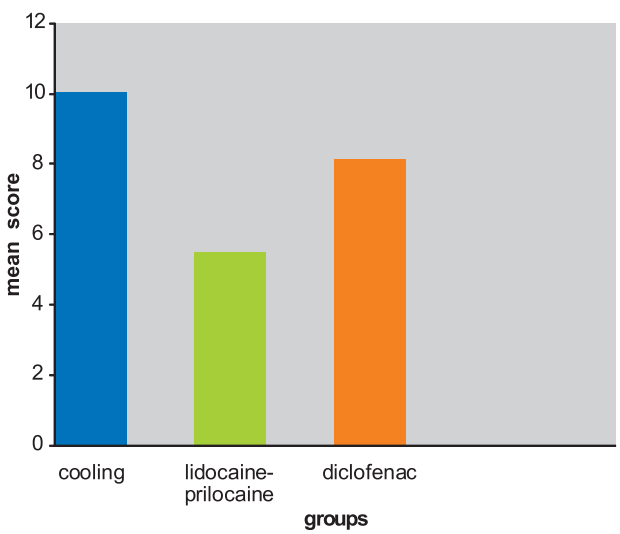

Figure 1. Pain scores rated by patients

anesthetics is the lidocaine–prilocaine cream, which is an effective, noninvasive means of analgesia, but this cream has several side effects [4,5]. Such adverse effects can limit the use of this topical anesthetic. On the other hand, laser hair removal may cause inflammatory disorders such as perifollicular edema, urticaria, or folliculitis. Diclofenac gel can decrease the inflammatory response by inhibiting prostaglandin synthesis [6]; therefore, this agent can be used for pain reduction during laser treatment. However, our findings showed that in comparison with the lidocaine–prilocaine cream, diclofenac gel was not as effective in controlling pain. Thus, the lidocaine–prilocaine cream seems to be the topical anesthetic of choice for laser hair removal.

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