Table I. Causes and response of ulcers treated with becaplermin

Pathogenic factor	No. of patients	No. of ulcers 100% healed	No. of ulcers healed >50%	No. of ulcers healed >30%
Venous	1	0	0	0
Lipodermatosclerosis	1	1	1	1
Neurotrophic	6	3	5	5
Multifactorial (mixed arterial and venous)	13	10	12	13

and covered with a saline-moistened dressing. After approximately 12 hours, the gel was rinsed off, and a saline-moistened dressing was applied for the remainder of the day. Patients were treated until complete healing occurred or for up to 20 weeks.

Twenty-one patients (14 women) with 21 target chronic lower extremity ulcers received becaplermin gel. The mean patient age was 60 years (range, 39-92 years). Patients had wounds attributable to various causes (Table I), and the ulcers were on the foot or ankle (16) or leg (5). Of the neuropathic ulcerations, 5 of 6 were ascribed to diabetes. All ulcers had been present for at least 3 months before initiation of becaplermin gel treatment (mean, 7.4 months), were refractory to previous treatment (18 ulcers had between 1 and 6 different types of treatment without healing), and were large (mean ± standard deviation [SD] diameter, 336.23 ± 311.05 mm).

Fourteen ulcers healed completely. The mean ± SD time to complete healing was 111.1 ± 81.5 days. Of the 7 ulcers that did not heal, the area of ulceration was reduced by more than 50% in 4 (mean ± SD time, 126.0 ± 40.2 days) and by 37% in 1; in 2 the area of the ulcers enlarged during treatment. No adverse effects of the treatment were noted.

Our results suggest that becaplermin may be used as adjunctive therapy for patients who have refractory, atypical lower extremity ulcers of varying pathogenesis. The ulcers were large and of long duration, generally poor prognostic factors for healing.[3] Could the high rate of healing—67% in less than 4 months—be attributable wholly to use of becaplermin? A number of obstacles limit such a conclusion. The number of ulcers studied was small, and the study was retrospective. Also, the patients received intensive instruction and care at the wound care center; this factor alone may increase the rate of healing. Comparing characteristics of wounds that healed with those of wounds that did not heal after becaplermin use, we found no particular factors that predicted healing.

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doi:10.1016/j.jaad.2004.01.056

Lack of the effect of topical vitamin K on bruising after mechanical injury

To the Editor: Bruising occurring after laser treatment is a significant problem in cosmetic dermatology. Although vitamin K creams are widely used for prevention and treatment of purpuras, there is no direct evidence to prove their efficacy. Shah et al[1] found that pretreatment with vitamin K had no effect on 585-nm pulsed dye laser-induced purpuras, but they found a slightly significant difference ($P < .0489$) between the mean scores of vitamin K and placebo treated sites in the posttreatment group. As subjective visual analog scale (VAS) was used to evaluate the effect of treatment, we think that the used numerical analysis might be misleading and a ranking-based statistical method ought to have been used to test the validity of the effectiveness of treatment. Additionally, the authors did not demonstrate significant difference between VAS values at any certain days.

To evaluate the effects of vitamin K on the prevention and clearing of purpuras, we designed a double-blind, placebo-controlled study on ten healthy individuals (8 female, 2 male, aged: 28-63 years, mean: 35 years). First, capillary resistance (CR) was measured on both forearms using a suction method with Parrot's angiosterrometer.[2,3,4] CR was designated as the minimum suction value (in kPa) at which the first central petechia occurred after application of the suction cup (2 cm in diameter) for 60 seconds. Forearms were then treated twice daily

with vitamin K cream or placebo (vehicle only) for one week; then CR was measured again. Vitamin K cream contained 0.5% vitamin K1 (F. Hoffmann-La Roche Ltd., Basel, Switzerland); the vehicle, used as placebo, was an 80% hydrophilic cream, containing 9% glycerine, 4.73% isopropylmyristate, 3% cetyl-stearyl-alcohol, 0.6% Carbopol 940, 0.315% sodium laurylsulphate, 0.2% soy lecithin, 0.18% sodium hydroxide, metylparabene and propylparabene. Neither vitamin K cream, nor placebo influenced CR, ie, the suction induced petechia formation (Fig 1).

To evaluate the effect of vitamin K cream on clearing of established purpuras, petechiae were induced on both forearms of the patients using a standard suction for 60 seconds. Then forearms were treated with vitamin K cream or placebo twice daily. Petechiae were counted at different time intervals after the induction, visually by the same person each time. Counted petechiae were easily distinguishable from each other.[2,4] There were no significant differences in the clearing of petechiae between vitamin K or placebo treated sites (Fig 2).

Our finding that vitamin K cream had no effect on CR correlates well with the finding of Shah et al[1] showing that topical vitamin K was not effective in preventing laser-induced bruising. On the other hand, using an objective method, we could not confirm significant beneficial effect of vitamin K cream on the clearing of petechiae. Contradictory data on the efficacy of vitamin K preparations might be caused by the differences in the concentration and vehicle in the different studies. Therefore, further investigations may be necessary to prove whether vitamin K cream is effective in treating bruising.

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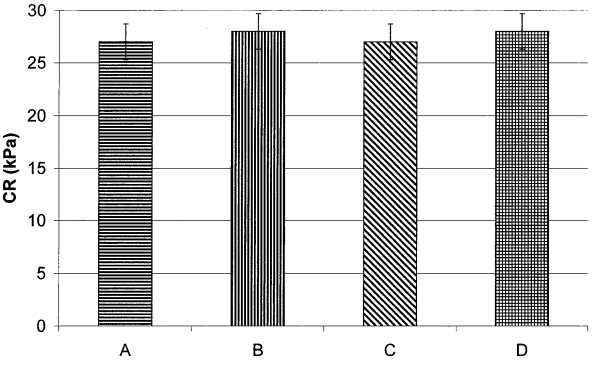

Fig 1. The effect of 1-week treatment with vitamin K cream or placebo on capillary resistance (CR). *A*, Before treatment (vitamin K). *B*, Before treatment (placebo). *C*, After treatment (vitamin K). *D*, After treatment (placebo). There is a nonsignificant difference in the values of CR on both forearms (CR_{before}: 27 kPa, CR_{after}: 28 kPa, n = 10, $p_{vitaminK}$ = .087, $p_{placebo}$ = .104).

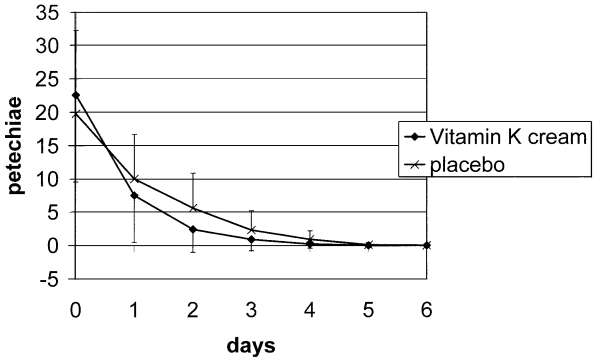

Fig 2. The number of induced petechiae after application of 40 kPa vacuum on the forearms of the patients. There was a slight but not significant difference in the number of petechiae between the vitamin K and placebo-treated sites on days 1, 2, and 3 (n = 10, p_1 = .116; p_2 = .072; p_3 = .213).

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doi:10.1016/j.jaad.2004.01.057