

308 nm UVB excimer laser for psoriasis

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311 nm ultraviolet B (UVB) phototherapy is a well established and widely used treatment for psoriasis. Because the biological effects of laser light differ from those of incoherent light with the same wavelength, and the wavelength of the 308 nm xenon chloride (XeCl) excimer laser¹ is within the action spectrum for the phototherapy of psoriasis,² we have investigated the therapeutic effect of XeCl laser light for psoriasis. This laser has been used to treat skin tumours³ and tattoos.

Ten patients with chronic plaque psoriasis (six men and four women), age range 24-73 (mean 48.2) years, were studied. One (2-3 cm diameter) of their plaques was treated with the 308 nm XeCl excimer laser (Lambda Physik LPX 105 E). The energy of each light impulse was 5.5 mJ/cm², and the duration was 15 ns (size of light spot 3 cm×3 cm). Irradiation was started at 20-98 impulses (mean 54.6) depending on skin type, with an 11-impulse increase in dose each time, at a rate of 20 impulse/s. Treatments were repeated three times weekly until all treated plaques had cleared completely. The cumulative dose of irradiation was 2.57-8.11 J/cm² (mean 4.45). The number of treatments was seven to 11 (mean 8.6). Mild and transient hyper-pigmentation was observed but no other side-effects.

In six patients we compared the efficacy of 311 nm narrow band UVB light with the 308 nm UVB laser. The narrow band UVB therapy (Philips TL-01) was given five times weekly, starting at 130 mJ/cm² with a 65 mJ/cm² increase in dose each time. The target plaque for the 308 nm laser was covered with a black band. The 308 nm XeCl excimer laser was applied to this plaque as described above. No other antipsoriatic treatment was used. The changes in the laser-treated and a symmetrically localised narrow band UVB-treated plaque were compared.

The number of treatments up to complete clearance with the 311 nm narrow band UVB light was 29-33 (mean 30.1), while that with the 308 nm XeCl laser was eight to 10 (mean 8.33). The cumulative doses were 26.31-32.15 J/cm² (mean 31.1) and 2.57-8.11 J/cm² (mean 4.81) for the 311 nm narrow band light and the 308 nm laser, respectively.

Side-effects, and especially the carcinogenicity, of the different UV therapies increase in parallel with the cumulative UV dose during life.^{4,5} The cumulative dose needed for healing was 6.47 times less with the XeCl laser than with the narrow band UVB therapy. We presume that the lower therapeutic cumulative dose therefore involves a lower risk of carcinogenesis and other side-effects, but this requires further investigation. The number of treatments was 3.6 times less, while the duration of phototherapy was 2.27 times shorter with the XeCl laser than with the 311 nm narrow band UV therapy. These results suggest that treatment with this laser light is more effective than 311 nm UVB treatment.

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