

[Lasers Surg Med.](#) 2014 Apr;46(4):270-4.

A comparison of two 810 diode lasers for hair removal: low fluence, multiple pass versus a high fluence, single pass technique.

[Koo B](#), [Ball K](#), [Tremaine AM](#), [Zachary CB](#).

Abstract

BACKGROUND & OBJECTIVE:

Laser hair removal has become an increasingly popular method to remove unwanted or excessive hair. We have assessed the relative efficacy and discomfort associated with competing hair removal techniques, namely a high average power 810 nm diode laser using an “in-motion” technique with a market-leading 810 nm device with a single-pass vacuum-assisted technique. This study has determined the long-term (6-12 months) hair reduction efficacy and the relative pain induction intensities of these devices.

STUDY DESIGN/MATERIALS AND METHODS:

Prospective, randomized, side-by-side comparison of either the legs or axillae was performed comparing the Soprano XL 810 nm diode in super hair removal (SHR) mode (Alma Lasers, Buffalo Grove, IL) hereafter known as the “in-motion” device vs. the LightSheer Duet 810 nm diode laser (Lumenis) hereafter known as the “single pass” device. Five laser treatments were performed 6 to 8 weeks apart with 1, 6, and 12 months follow-ups for hair counts. Pain was assessed in a subjective manner by the patients on a 10-point grading scale. Hair count analysis was performed in a blinded fashion.

RESULTS:

There was a 33.5% (SD 46.8%) and 40.7% (SD 41.8%) reduction in hair counts at 6 months for the single pass and in-motion devices respectively ($P = 0.2879$). The average pain rating for the single pass treatment (mean 3.6, 95% CI: 2.8 to 4.5) was significantly ($P = 0.0007$) greater than the in-motion treatment (mean 2.7, 95% CI 1.8 to 3.5).

CONCLUSIONS:

This data supports the hypothesis that using diode lasers at low fluences and high average power with a multiple pass in-motion technique is an effective method for hair removal, with less pain and discomfort, while maintaining good efficacy. The 6 month results were maintained at 12 month for both devices.

[J Drugs Dermatol](#). 2011 Jan;10(1):62-5.

Comparison of high-fluence, single-pass diode laser to low-fluence, multiple-pass diode laser for laser hairreduction with 18 months of follow up.

[Braun M](#)1.

Author information

Abstract

Laser hair removal is the most popular laser procedure in the United States (U.S.), yet there has not been a prospective study demonstrating long-term efficacy of diode laser hair removal beyond six months. A prospective, single-center, bilaterally paired, blinded, randomized comparison split leg study was carried out with 22 patients comparing high-fluence, single-pass diode laser to low-fluence, multiple-pass diode laser. Hair counts were done six and 18 months following five treatment sessions and were found to be comparable t90-94 percent hair reduction. Hair counts at six months following the fifth treatment were comparable to hair counts at 18 months, indicating that sixth-month hair counts can be considered indicative of long-term results. The low-fluence, multiple-pass in-motion technique was associated with significantly less pain compared to the high-fluence, single-pass technique. Multiple passes of a diode laser at low fluences but with high average power results in permanent hair removal with less discomfort and fewer adverse effects, especially in darker skin.

Comparison of Alexandrite and Diode Lasers for Hair Removal in Dark and Medium Skin: Which is Better?

Mustafa FH1, Jaafar MS2, Ismail AH3, Mutter KN4.

Author information

Abstract

INTRODUCTION:

To improve laser hair removal (LHR) for dark skin, the fluence rate reaching the hair follicle in LHR is important. This paper presents the results of a comparative study examining the function of wavelength on dark skin types using 755 nm alexandrite and 810 nm diode lasers.

METHODS:

The structure of the skin was created using a realistic skin model by the Advanced Systems Analysis Program.

RESULT:

In this study, the alexandrite laser (755 nm) and diode laser (810 nm) beam-skin tissue interactions were simulated. The simulation results for both lasers differed. The transmission ratio of the diode laser to the dark skin dermis was approximately 4% more than that of the alexandrite laser for the same skin type. For the diode laser at skin depth $z = 0.67$ mm, the average transmission ratios of both samples were 36% and 27.5%, but those for the alexandrite laser at the same skin depth were 32% and 25%.

CONCLUSION:

Both lasers were suitable in LHR for dark skin types, but the diode laser was better than the alexandrite laser because the former could penetrate deeper into the dermis layer.

Safety and efficacy of low fluence, high repetition rate versus high fluence, low repetition rate 810-nm diode laser for axillary hair removal in Chinese women.

Li W1, Liu C2, Chen Z1, Cai L1, Zhou C1, Xu Q1, Li H1, Zhang J1.

Author information

Abstract

BACKGROUND:

High-fluence diode lasers with contact cooling have emerged as the gold standard to remove unwanted hair. Lowering the energy should result in less pain and could theoretically affect the efficacy of the therapy.

OBJECTIVE:

To compare the safety and efficacy of a low fluence high repetition rate 810-nm diode laser to those of a high fluence, low repetition rate diode laser for permanent axillary hair removal in Chinese women.

METHODS:

Ninety-two Chinese women received four axillae laser hair removal treatments at 4-week intervals using the low fluence, high repetition rate 810-nm diode laser in super hair removal (SHR) mode on one side and the high fluence, low repetition rate diode laser in hair removal (HR) mode on the other side. Hair counts were done at each follow-up visit and 6-month follow-up after the final laser treatment using a "Hi Quality Hair Analysis Program System"; the immediate pain score after each treatment session was recorded by a visual analog scale.

RESULTS:

The overall median reduction of hair was 90.2% with the 810-nm diode laser in SHR mode and 87% with the same laser in HR mode at 6-month follow-up. The median pain scores in SHR mode and in HR mode were 2.75 and 6.75, respectively.

CONCLUSION:

Low fluence, high repetition rate diode laser can efficiently remove unwanted hair but also significantly improve tolerability and reduce adverse events during the course of treatment.

KEYWORDS:

China; diode laser; hair removal; high fluence single pass; low fluence multiple pass

Laser hair removal: comparison of long-pulsed Nd:YAG, long-pulsed alexandrite, and long-pulsed diode lasers.

Bouzari N1, Tabatabai H, Abbasi Z, Firooz A, Dowlati Y.

Author information

Abstract

BACKGROUND:

Advances in laser technology over the past several years have led to the development of numerous lasers for the treatment of unwanted hair. Laser wavelength is a key factor influencing treatment efficacy and complication rates.

OBJECTIVE:

To compare the efficacy and safety of laser hair removal using three different laser systems.

METHODS:

A retrospective study of 805 consecutive laser-assisted hair removal treatments, conducted on 75 patients by means of either a long-pulsed Nd:YAG, a long-pulsed alexandrite, or a long-pulsed diode laser is reported. All patients were evaluated at least 3 months after the last treatment, and their present conditions were compared with the 1st-day photographs.

RESULTS:

The mean hair reduction was 42.4%, 65.6%, and 46.9% in Nd:YAG, alexandrite, and diode lasers, respectively. When the number of treatment sessions was taken into account, the efficacy of alexandrite and diode lasers was not significantly different, whereas both systems were more efficacious than Nd:YAG. Neither of the laser systems showed better results for a particular skin type. The occurrence of side effects was not significantly different between three laser systems.

CONCLUSION:

Both long-pulsed alexandrite and long-pulsed diode laser systems are effective in the treatment of unwanted hair, and they are more efficacious than Nd:YAG laser.