

Laser Hair Removal: Results Of 2-Week Versus 6-Week Treatment Intervals

Jenifer R. Lloyd, D.O.

*Lloyd Dermatology and Laser Center
Youngstown, Ohio*

Diane R. MacGillis, M.D.

*LCI – Lasercom Clinics International
Toronto, Canada*

Abstract: To determine efficacy of two-week versus six-week treatment intervals for laser removal of axillary hair, 16 patients received five treatments at two-week intervals to the right axilla and five treatments at six-week intervals to the left axilla using the Cynosure Apogee laser system. Each treatment was done using a single pass of the Cynosure Apogee Laser with the following parameters: 16mm spot size, 755nm wavelength, 20 millisecond pulse duration and 20J/cm². Results were evaluated one year following the last laser treatment using before and after photographs for computerized hair counts. One-year follow up photographs demonstrate the average hair reduction using two-week treatment intervals of 57%, while six-week intervals demonstrate an average of 81% hair reduction. **Conclusions:** Treatment intervals strongly affect the efficacy of hair removal results. For this study, the six-week treatment intervals provided better efficacy than the two-week intervals.

Key Words: Hair removal, laser procedure, 755 nm laser

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Introduction

Laser technology is quickly becoming the treatment of choice for laser hair removal with very few studies available to demonstrate the most effective treatment intervals. There is a large variation in the currently used hair removal treatment intervals. The studies listed below cover the range between three and eight weeks.

- Two months with an intense pulse light and ruby laser [1]
- Six to eight weeks with a 810nm diode laser [2]
- Four to six weeks with a 755nm alexandrite laser and a 810nm diode laser [3,4]

- One month with a long pulsed Nd:YAG laser [5]
- Three weeks with a long pulsed alexandrite laser [6]

All of these studies report good to excellent hair removal results. This study was done to determine if two-week treatment intervals would alter efficacy compared to a benchmark midrange of six-week treatment intervals.

Materials And Methods

Sixteen patients, with skin types between I and III, volunteered for laser treatment to their axillary region to remove unwanted hair.

- Patients had five treatments at two-week intervals to the right axilla
- Patients had five treatments at six-week intervals to the left axilla.

Both right and left axillae were digitally photographed prior to each treatment and 12 months after the last treatment. The Apogee Laser (Cynosure, Inc. Chelmsford, MA) was used to treat the axillae using the following parameters:

- Wavelength - 755nm
- Spot size - 16mm diameter
- Pulse duration – 20milliseconds
- Fluence $20\text{J}/\text{cm}^2$ with minimal overlap between pulses.

Normal post-treatment care was observed.

Patients' results were evaluated one year following the last laser treatment. The study was documented and the results were evaluated using before and after photographs for computerized hair counts.

Results

Clinical photographs representing the treatment results with the two-week intervals are shown in Figure 1 and the six-week intervals are shown in Figure 2.



Figure 1. Two-week treatment interval photographs. Pre-treatment on the left, 12-month post-last treatment on the right.



Figure 2. Six-week treatment interval photographs. Pretreatment on the left, 12-month post last treatment on the right.

All patients tolerated the procedure well. No side effects were reported and there was no evidence of pigmentary alteration noted.

The treatment results were categorized by the percentage of hair reduction: Poor (0-25%), Fair (26-50%), Good (51-75%) and Excellent (76-100%). Hair reduction was calculated using the before and after hair counts (see Table 1).

Table 1. Hair counts and clearance percentage.

Patient No.	2-week treatment interval			6-week treatment interval		
	Hair counts		Clearance %	Hair counts		Clearance %
	PRE	POST		PRE	POST	
1	344	120	65	274	9	97
2	449	212	53	331	63	81
3	260	119	54	327	19	94
4	576	302	48	511	135	74
5	164	63	62	129	11	91
6	491	306	38	436	208	52
7	192	77	60	187	2	99
8	458	247	46	411	54	87
9	393	184	53	402	76	81
10	560	218	61	466	47	90
11	389	237	39	415	89	79
12	291	209	28	360	166	54
13	455	356	22	472	212	55
14	316	185	41	260	39	85
15	290	215	26	302	79	74
16	393	173	56	419	55	87
Median			50			83
Mean			47			80
Std. dev.			±13			±15

Only 50% of the patients receiving laser treatment at the two-week intervals demonstrated a good response whereas 100% of the patients treated at six-week intervals had good to excellent results, as seen in Figure 3.

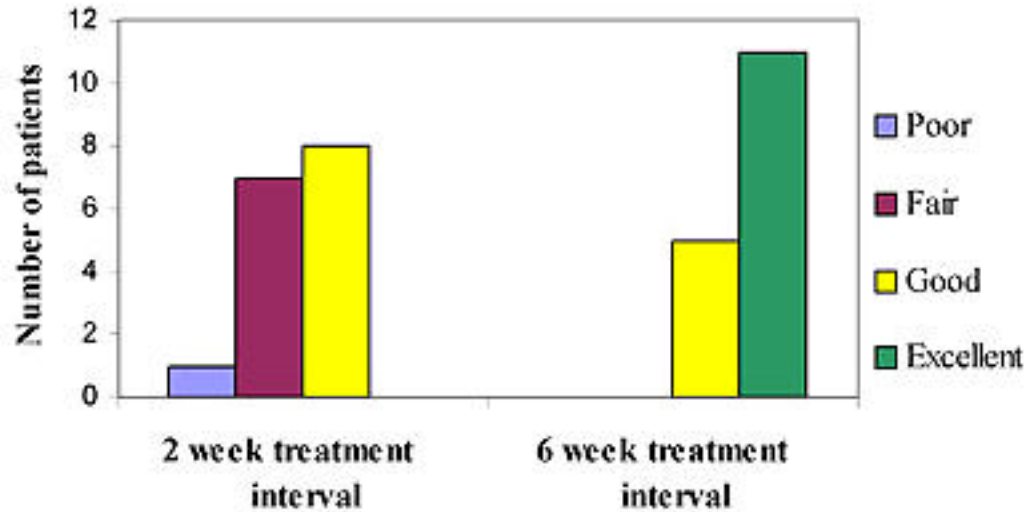


Figure 3. Treatment interval comparison.

Discussion

In this study the laser treatments given every six weeks yielded better long-term clinical results than the treatments given every two weeks. Previous studies [1-5] have demonstrated good to excellent results for treatment intervals between four and eight weeks. An earlier study done by the investigators [6] demonstrated excellent long-term hair reduction using three-week treatment intervals. Mathematical modeling showed that better laser penetration was achievable at the hair bulb and bulge in the absence of terminal hair shafts extending to the skin surface. It was recognized that the success of a hair removal treatment at a shortened treatment interval was dependent on the regeneration of melanized target structures for the follow-up treatments [6].

The poor long-term results seen with the shortened treatment interval would suggest that the laser treatment given only two weeks following the initial treatment did not yet have an adequate target to absorb the laser's energy. It is hypothesized that the hair bulb has not yet regenerated at two weeks and hence the laser treatment was ineffective. The six-week interval allowed adequate time for the hair bulb and follicle to regenerate therefore providing an adequate target for the laser and hence, a more effective long-term result.

Conclusions

The treatment intervals chosen for laser hair removal strongly affect the efficacy of long-term results. This study demonstrates better efficacy at the six-week treatment interval compared with the two-week treatment interval.

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Corresponding Author and Reprints

Jenifer R. Lloyd, D.O.
8060 Market St.
Youngstown, OH 44512
330-758-9189 (p)
330-758-4487 (f)
jrl2@neoucom.edu