Laser Therapy for Plaque Psoriasis

Policy Number: MM.02.027
Original Effective Date: 04/01/2016

Line(s) of Business: HMO; PPO; QUEST Integration
Current Effective Date: 05/26/2017

Section: Medicine
Place(s) of Service: Outpatient

I. Description
Laser therapy is a form of targeted light therapy used to treat specific areas of the body. It spares healthy tissue from possible long and short-term side effects of more generalized treatments that expose additional tissue to radiation.

Literature supports the use of excimer laser therapy for the treatment of light-to-moderate localized psoriasis comprising less than 10% body surface area that is unresponsive to conservative treatment. Evidence is lacking for the use of laser therapy for first-line treatment or for the treatment of generalized psoriasis or psoriatic arthritis.

II. Criteria/Guidelines
A. Excimer and pulsed dye laser treatment is covered (subject to Limitations and Administrative Guidelines) for patients with mild-to-moderate localized plaque psoriasis affecting 10% or less of their body area who have failed to adequately respond to three or more months of topical treatments, including at least two of the following:
   1. Anthralin;
   2. Corticosteroids (e.g., betamethasone dipropionate ointment and fluocinonide cream);
   3. Keratolytic agents (e.g., lactic acid, salicylic acid, and urea);
   4. Retinoids (e.g., tazarotene);
   5. Tar preparations; and/or
   6. Vitamin D derivatives (e.g., calcipotriene).
B. Up to sixteen laser treatments per course and three courses per year are covered (subject to Limitations and Administrative Guidelines). If the person fails to respond to an initial course of laser therapy, as documented by a reduction in Psoriasis Area and Severity Index (PASI) score or other objective response measurement, additional courses are not covered as they have not been shown to improve health outcomes.

III. Limitations
A. Laser therapy is not covered as first-line treatment.
IV. Administrative Guidelines

A. Precertification is required. Complete HMSA's precertification request and fax or mail the form, or use iExchange as indicated. All of the following documentation must be submitted:

1. Clinical notes describing symptoms and physical findings including body surface area involvement
2. Documentation of failure of conservative treatment

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<tr>
<th>CPT Code</th>
<th>Description</th>
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<tr>
<td>96920</td>
<td>Laser treatment for inflammatory skin disease (psoriasis); total area less than 250 square centimeters</td>
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<tr>
<td>96921</td>
<td>Total area 250-500 square centimeters</td>
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<tr>
<td>96922</td>
<td>Total area over 500 square centimeters</td>
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V. Scientific Background

There are several systematic reviews of the literature on targeted phototherapy. Reviews differed in the type of study included and the comparison interventions. A 2013 systematic review by Almutawa, et. al. considered only RCTs; psoralen plus ultraviolet A (PUVA) was the comparison intervention. The authors identified three RCTs comparing the efficacy of targeted ultraviolet B (UVB) phototherapy with PUVA for treatment of plaque psoriasis. Two of the three studies used an excimer laser (308 nm) as the source of targeted phototherapy, and the third study used localized narrowband (NB)-UVB light. There was heterogeneity among studies, and thus a random effects meta-analysis model was used. Using the random effects model, there was not a statistically significant difference between the two techniques in the proportion of patients with at least a 75% reduction in psoriasis. The pooled odds ratio (OR) was 3.48 (95% confidence interval [CI], 0.56 to 22.84). (The wide confidence interval indicated a lack of precision in the efficacy estimate.) The trials in the systematic review included a 2006 study by Neumann et al in which 10 patients were treated with a NB-UVB lamp or cream PUVA. The UVB lamp and PUVA-treated sides showed similar gradual clearing over the course of 20 treatments, reaching 64% clearance at the end of the five-week treatment period. In another trial, Sezer, et. al. (2007) conducted a left-to-right comparison of local NB-UVB versus PUVA paint (3 times/week for 9 weeks) in a cohort of 25 patients. The mean severity index improved by 61% with local NB-UVB and 85% with PUVA paint; one patient dropped out of the study because of a phototoxic reaction in the PUVA-paint-treated side.

In 2012, Mudigonda et al published a systematic review of controlled studies (RCTs and non-RCTs) on targeted versus non-targeted phototherapy for patients with localized psoriasis. The authors identified three prospective nonrandomized studies comparing the 308 nm excimer laser with NB-UVB; no studies comparing the excimer laser with broadband (BB)-UVB or PUVA were identified. Among the three studies was a 2006 study by Goldinger et al that compared the excimer laser with full-body NB-UVB in 16 patients. At the end of 20 treatments, Psoriasis Area and Severity Index (PASI) scores were equally reduced on the two sides, from a baseline of 11.8 to 6.3 for laser and
from 11.8 to 6.9 for non-targeted NBUVB. A 2005 study by Kollner et al included 15 patients with stable plaque psoriasis. The study compared the 308 nm laser, the 308 nm excimer lamp, and standard TL-01 lamps. One psoriatic lesion per patient was treated with each therapy (i.e., each patient received all three treatments). Investigators found no significant difference in the efficacy of the three treatments after 10 weeks. The mean number of treatments to achieve clearance of lesions was twenty four.

Another systematic review by Mudigonda, et. al., published in 2012, included non-controlled observational studies on targeted UVB phototherapy. This article was not limited to the 308 nm excimer laser as was the 2012 review, previously discussed. A total of 9 studies with at least seven patients were identified; sample sizes ranged from seven to 124. The authors concluded that the 308 nm excimer laser, 308 nm excimer non-laser, and non-excimer light devices were effective for treating localized psoriasis and were safer than whole body phototherapy because uninvolved skin is spared. The review did not pool study findings and did not evaluate separately studies of different psoriasis severity.

A small 2014 sham-controlled RCT by Levin et al evaluated the Levia targeted NB-UVB device. Although the device can be used at home, in the trial, treatments were provided by experienced phototherapists in a clinical setting. The study included patients with bilateral plaque-type psoriasis who had symmetric target lesions two to four centimeters in diameter. The minimum target lesion score (TLS) was six, indicating at least moderate severity. (TLS is a 12-point scale that incorporates erythema, lesion thickness, and scaling.) Patients received targeted phototherapy on a randomly selected side of the body and sham (visible light treatment) on the other side. Treatments were given three times weekly for 12 weeks. Seventeen (81%) of 21 randomized patients completed the study. The primary end point, percentage of lesions that were clear or almost clear (TLS ≤3) at week 12 did not differ significantly between groups. The end point was attained on 10 treated lesions and seven sham lesions (p=0.118). Two of three prespecified secondary end points significantly favored active treatment. The percentage improvement in TLS was 43% on the treated side and 29% on the sham side (p=0.043). In addition, 12 lesions in the treated group and seven in the placebo group had at least 50% improvement, as measured by TLS (p=0.020). However, percentage improvement in pruritus visual analog scale score, 62% on the treated side and 27% on the sham side, did not differ significantly between groups. The study had a relatively high dropout rate but because patients served as their own controls, this is not likely to be a major source of bias.

**Treatment-Resistant Psoriatic Lesions**

Several small studies suggest that targeted phototherapy can be effective for treatment-resistant lesions. One patch comparison reported effective clearing (pre-PASI=6.2; post-PASI=1.0) of treatment-resistant psoriatic lesions; six of the patients had previously received topical treatment, five had received conventional phototherapy, and three had received combined treatments including phototherapy. The same investigator group reported that 12 of 13 patients with “extensive and stubborn” scalp psoriasis (i.e., unresponsive to class I topical steroids used in conjunction with tar and/or zinc pyrithione shampoos for at least one month) showed clearing following treatment with the 308 nm laser. In a 2006 open trial from Europe, 44 (81%) of 54
patients with palmoplantar psoriasis resistant to combined phototherapy and systemic treatments were cleared of lesions with only 1 NB-UVB lamp treatment weekly for 8 weeks.

Excimer laser is a treatment option for patients who have failed topical therapy. Clinical studies show that response increases with up to 13 treatments and the typical duration of response is four to six months. Treatment is often limited to less than ten percent body surface area so exposure to the laser in a small area is minimized.

In summary, the excimer laser is more effective than the pulsed dye laser for psoriasis (Taibjee et al, 2005). The pulsed dye laser requires fewer treatments and has fewer side effects. It targets the abnormal microvasculature of psoriatic plaques. Because of this, it has been suggested that the pulsed dye laser may be useful in excimer-laser–resistant cases as has been shown in the 2005 Hruza study. (Ros et al, 1996; Zelickson et al, 1996; Lanigan et al, 1997; Erceg et al, 2006; Ilknur et al, 2006; de Leeuw et al, 2006; Bovenschen et al, 2007).

Several small RCTs and other small non-RCTs in patients with moderate-to-severe psoriasis have found that targeted phototherapy has efficacy similar to whole body phototherapy or PUVA. Targeted phototherapy is presumed to be safer or at least no riskier than whole body phototherapy. Several nonrandomized studies have found that targeted phototherapy can improve health outcomes in patients with treatment-resistant psoriasis. One small sham controlled RCT evaluating a targeted NB-UVB device had mixed findings; the primary outcome was statistically nonsignificant.

VI. Important Reminder

The purpose of this Medical Policy is to provide a guide to coverage. This Medical Policy is not intended to dictate to providers how to practice medicine. Nothing in this Medical Policy is intended to discourage or prohibit providing other medical advice or treatment deemed appropriate by the treating physician.

Benefit determinations are subject to applicable member contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

This Medical Policy has been developed through consideration of the medical necessity criteria under Hawaii's Patients' Bill of Rights and Responsibilities Act (Hawaii Revised Statutes §432E-1.4), generally accepted standards of medical practice and review of medical literature and government approval status. HMSA determined that services not covered under this Medical Policy will not be medically necessary under Hawaii law in most cases. If a treating physician disagrees with HMSA's determination as to medical necessity in a given case, the physician may request that HMSA consider the application of this Medical Policy to the case at issue.

VII. References


