Hair Reduction with Lasers

Since the first FDA- approved laser hair reduction (LHR) device was introduced in 1995, LHR has become one of the most commonly performed cosmetic procedures with over 1 million treatments annually, according to statistics from American Society for Aesthetic Plastic Surgery. Much of the popularity surrounding LHR can be attributed to its efficacy and excellent safety profile. With minimal discomfort and downtime.

Unwanted hair growth affects both men and women, although the site of concern and caused may vary. For men, body areas typically sought for treatment are the chest, back, shoulder, neck and ears, whereas for women, the face, chest, axilla, bikini line, and legs are the usual areas of concern. Moreover, some individuals may choose to remove undesired hair for cosmetic, psychosocial, or cultural reasons; others may suffer from hirsutism due to medical conditions. In either case, undesired hair growth, if left untreated, can lead to significant distress for affected individuals and negatively influence self-image and self-esteem.

This chapter provides a basic foundation in laser principles as they relate to hair removal and a practical approach to the treatment of unwanted hair.

Patient Selection

Proper patient selection based on an individual's Fitz- Patrick skin type, hair color, coarseness, and density is crucial for achieving successful treatments. The ideal candidate for LHR possesses fair skin and dark, coarse hair. Fair-Skin individuals have little to no epidermal melanin, which, if present, can serve as a competing target for laser surgery. Thus, darker skin types are at greater risk of epidermal injury with LHR treatments, patients with Fitzpatrick skin types pose the greatest challenge to treatment and have the highest risk of complications, and recommendations for treatments are outside the scope of this chapter. White, light-coloured and fine vellus hair lack melanin target in the hair follicle, and patients with these hair characteristics are poor candidate for LHR

Indications

- Permanent hair reduction (FDA approved)
- Pseudo folliculitis barbae
- Pseudo folliculitis pubis
- Hirsutism
- Hypertrichosis

Hirsutism is excessive hair growth due to medical conditions associated with hyperandrogenic states, such as polycystic ovarian syndrome. **Hypertrichosis** is excessive hair growth that is not androgen dependent and, although generally idiopathic and genetic, can be due to thyroid disease, malnutrition, and medications (e.g., phenytoin, corticosteroids and cyclosporine).

Patient Expectations

Addressing patient expectations is fundamental to ensuring patient satisfaction. First, it is important to clarify a common misconception that laser hair reduction results in complete permanent hair loss. According to the FDA, LHR is approved for permanent hair reduction, which is defined as “long term, stable reduction in the number of hairs re-growing after a treatment regime”. Patients may experience a range of different outcomes, such as fever, thinner, slower hair regrowth, or lighter hairs, all of which are still clinically significant and desirable.

Candidates for LHR should expect to undergo several treatments in order to achieve optimal results. Because hair growth is asynchronous and LHR is most effective for hair follicles in the anagen phase. Patients can expect, on average, 20% to 30% permanent hair reduction after one treatment and up to 60% to 90% reduction after completing a treatment series. Typically individuals with Fitzpatrick skin types I to III require a series of six sessions, whereas skin types IV and V require eight sessions or more because treatment fluences are increased more slowly and conservatively over time with darker skin types to minimize the risk of complications.

Advantages of LHR

- Permanent Hair reduction
- Relatively brief treatment sessions
- Mild to moderate discomfort
- Good safety profile for devices with built-in cooling
- Useful for large body areas, such as backs and legs
- Minimal to no recovery time

Results

After the first treatment, patients may experience a prolonged delay in the hair regrowth from 1 to 3 months. This is temporary hair reduction, and although patients are usually very pleased with the lack of growth, they should be forewarned that regrowth will occur. Hair regrowth may appear in some parts of the treatment area and not others. This patchy regrowth is normal and indicates that a group of hairs in the anagen phase wad effectively treated.

The greatest efficacy with permanent hair reduction is achieved with the use of high fluences, a greater number of treatments, and adequately long intervals between treatments that approximate the telogen phase for the treatment area.

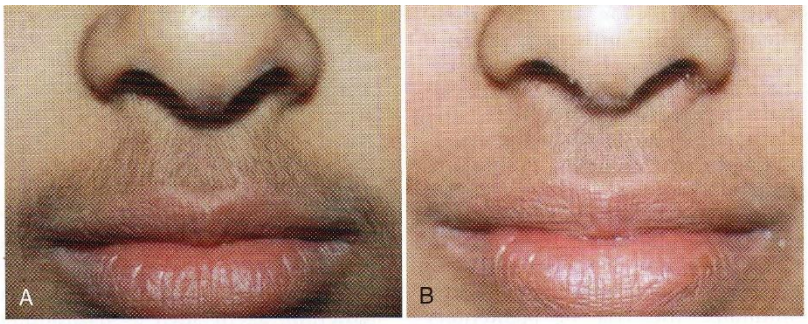

FIGURE 26-10 Upper lip hair (A) before and (B) after completion of a series of hair reduction treatments with a Q-switched 1064 nm laser. *(Courtesy of HOYA ConBio, Fremont, CA; J. Garden, MD, using laser.)*

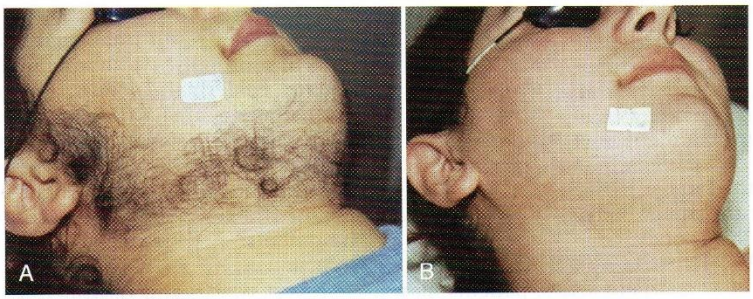

FIGURE 26-11 Jawline and sideburn hair (A) before and (B) after completion of a series of hair reduction treatments with a 755 nm laser. *(Courtesy of Candela, Wayland, MA; M. Ercan, MD, using laser.)*

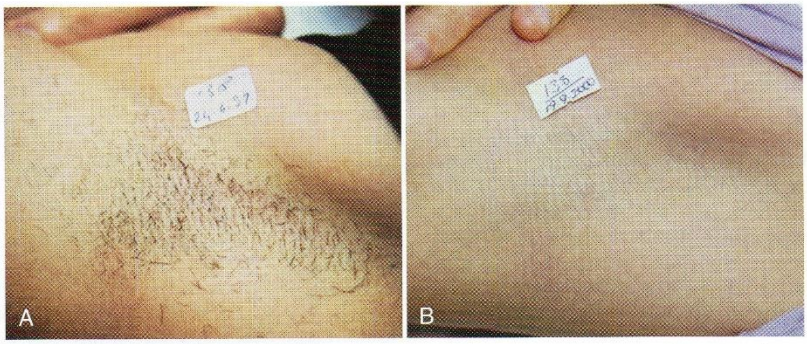

FIGURE 26-12 Axilla hair (A) before and (B) after completion of a series of hair reduction treatments with a 755 nm laser. *(Courtesy of Candela, Wayland, MA; M. Ercan, MD, using laser.)*

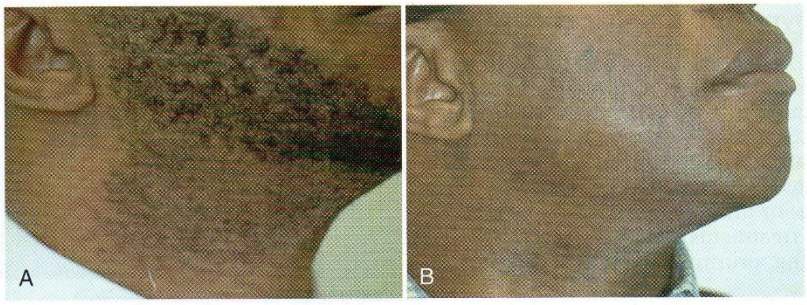

FIGURE 26-13 Pseudofolliculitis barbae (A) before and (B) after completion of 12 hair reduction treatments with a 1064 nm long-pulse laser. *(Courtesy of Sciton, Palo Alto, CA; L. Haney, RN, using laser.)*

Conclusion

Lasers and intense pulsed light devices can effectively reduce unwanted hair. A series of treatments is required, typically six for lighter Fitzpatrick skin types and eight or more for darker skin types. Laser hair reduction is generally well tolerated and las a low risk of side effects and complications with proper use of these devices and appropriate selection of treatment parameters.