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Macrene Alexiades MD PhD

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Laser and Light-Based Treatments of Acne and Acne Scarring

Macrene Alexiades, MD PhD

Associate Clinical Professor
Yale University School of Medicine
Dermatology and Laser Surgery Center, New York, NY
955 Park Avenue, New York, NY 10021
Tel: (212) 570-2067
dralexiades@nyderm.org

Abstract

The treatment of acne and acne scarring with lasers, light-based and energy-based technologies, has become an integral component of our therapeutic arsenal. Lasers including infrared wavelengths and pulsed dye lasers; light devices including blue light, red light, and broadband light; and photodynamic therapy with aminolevulinic acid (ALA) and methylaminolevulinic acid (MAL) have been shown to be effective in the treatment of acne vulgaris. The optimal outcomes are achieved with photodynamic therapy combined with medical therapy. Acne scarring has been best treated with lasers, including non-ablative infrared lasers, fractional non-ablative and ablative laser resurfacing, and most recently needle-based radiofrequency devices.

Introduction

Laser and light devices have become an important component of our treatment arsenal for acne and acne scarring. Among the devices approved by the Federal Drug Administration (FDA) in the United States and by regulatory bodies in the European Union are blue light (approved in 2002); red light (approved in combination with blue in 2005); 1450 nm diode (approved in 2002); long pulsed-dye laser (approved in 2004); and photopneumatic 400-1200 nm broadband light therapy (approved in 2007). Photodynamic therapy (PDT), is highly efficacious in the treatment of acne but is off-label use. These protocols include aminolevulinic acid combined with blue light, red light, pulsed dye laser or intense pulsed light, or methyl aminolevulinic acid combined with red light (Table 1).

Table 1. Overview of Laser and Light-Based Treatments of Acne

Modality	FDA Status
Light	
- Blue	Approved 2002
- Red	Approved combined blue 2005
Laser	

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